

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.





U. S. DEPT. OF AGRICULTURE  
NATIONAL AGRICULTURAL LIBRARY

JUL 22 1964

CURRENT SERIAL RECORDS

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
for  
**OREGON**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE  
and  
OREGON STATE UNIVERSITY  
and  
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above  
in cooperation with other Federal, State and private organizations.

||||||| AS OF |||||  
**MAR. 1, 1964**



# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## *To Recipients of Water Supply Outlook Reports:*

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

### PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

### PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
**for**  
**OREGON**

ISSUED  
MARCH 8, 1964

*Report prepared by*  
W. T. FROST, Snow Survey Supervisor  
*and*  
BOB L. WHALEY, Assistant Snow Survey Supervisor  
SOIL CONSERVATION SERVICE  
209 S.W. 5TH AVE., PORTLAND 4, OREGON

THOMAS P. HELSETH  
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE

*Issued by*  
F. EARL PRICE  
DIRECTOR  
OREGON AGRICULTURAL  
EXPERIMENT STATION

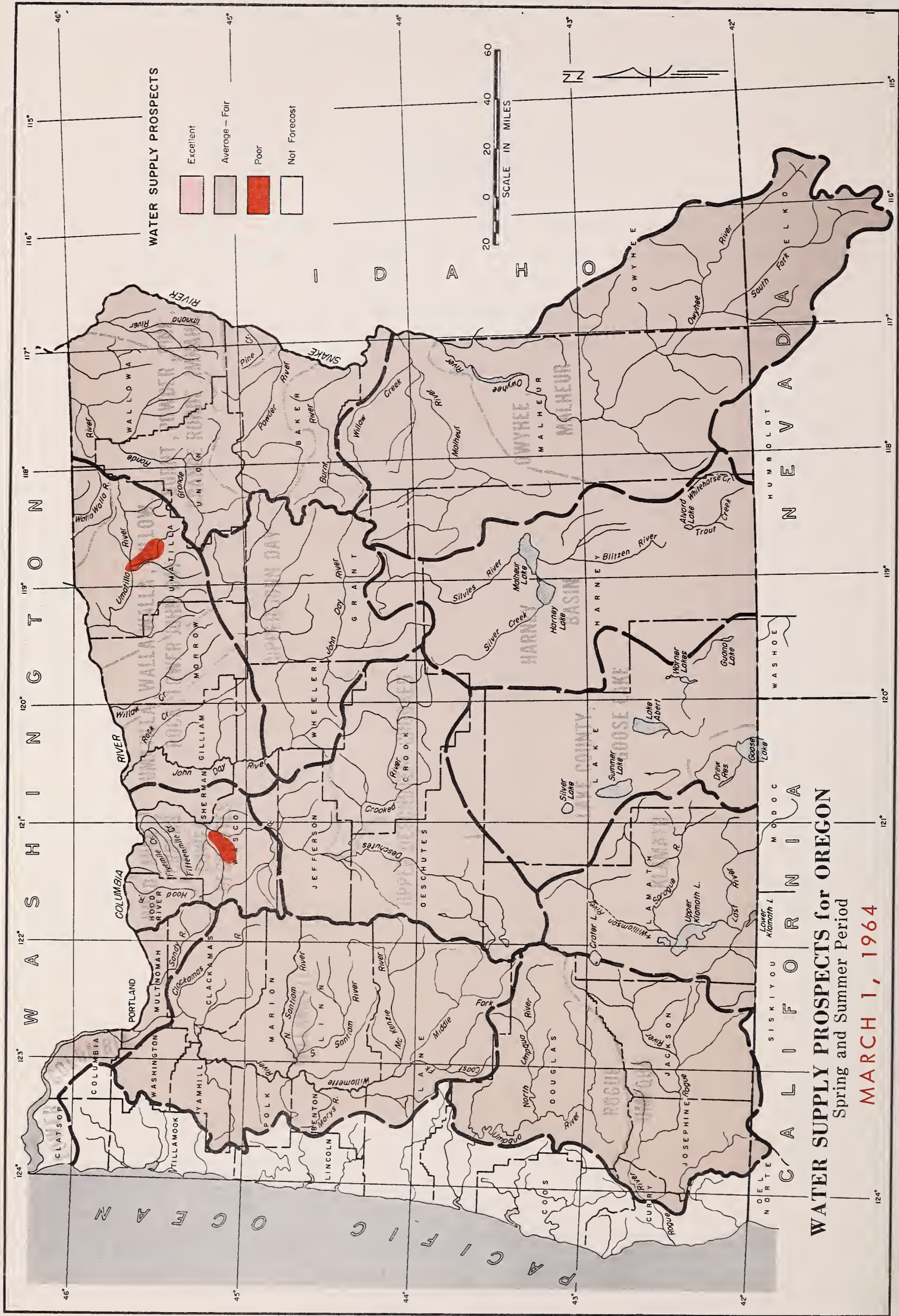
CHRIS L. WHEELER  
STATE ENGINEER  
STATE OF OREGON



## TABLE OF CONTENTS

	PAGE
WATER SUPPLY PROSPECTS FOR OREGON.....(MAP).....	FACING PAGE 1
WATER SUPPLY OUTLOOK FOR OREGON.....	1
STORAGE STATUS OF OREGON RESERVOIRS.....(MAP).....	3
SNOW WATER ACCUMULATION IN OREGON (STATEWIDE) ..(GRAPH).....	4
SNOW WATER ACCUMULATION IN OREGON (AREAS).....(GRAPHS).....	5
SNOW WATER ACCUMULATION IN OREGON (AREAS).....(GRAPHS).....	6
MOUNTAIN SOIL MOISTURE IN OREGON.....(MAP).....	7
VALLEY PRECIPITATION IN OREGON.....(MAP AND TABLE).....	8
CURRENT OREGON STREAMFLOW.....(GRAPH).....	9
DETAILED WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS	
OWYHEE, MALHEUR.....	AREA 1
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA.....	AREA 2
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY.....	AREA 3
UPPER JOHN DAY.....	AREA 4
UPPER DESCHUTES, CROOKED.....	AREA 5
HOOD, MILE CREEKS, LOWER DESCHUTES.....	AREA 6
LOWER COLUMBIA.....	AREA 7
WILLAMETTE.....	AREA 8
ROGUE, UMPQUA.....	AREA 9
KLAMATH.....	AREA 10
LAKE COUNTY, GOOSE LAKE.....	AREA 11
HARNEY BASIN.....	AREA 12
MAP AND INDEX OF OREGON SNOW COURSES.....(MAP)	
LIST OF COOPERATORS.....	INSIDE BACK COVER







# WATER SUPPLY OUTLOOK for OREGON

MARCH 1, 1964

Clear, cool February weather brought near record-low precipitation\* which has slightly "dimmed" the satisfactory water supply outlook for the spring and summer of 1964. Although the outlook is still satisfactory for this irrigation season, stored water in a few reservoirs is short of the amount needed for an adequate crop season.

## SNOW COVER

Water content of the mountain snowpack increased only slightly during February and is now 91 percent of the March first average. Just one year ago the (state-wide) snowpack was only 20 percent of the March 1 average.

## SOIL MOISTURE

Watershed soils under the snowpack are pretty widely re-charged with moisture and will absorb only small amounts of snowmelt water during runoff.

## RESERVOIR STORAGE

Water stored in 26 reservoirs now totals 78 percent of the 1943-57 average for March first. This will be adequate for usual irrigation requirements except for possible late season shortages for water users served from McKay Reservoir near Pendleton and Clear Lake Reservoir near Maupin.

## STREAMFLOW

Streamflow\*\* throughout the state has been greatly below average during February and the flow from October 1 through February 29 have varied from lows of 36 to 47 percent on the Umatilla and John Day, respectively, up to 84 percent on the Umpqua and 92 percent on the Klamath River.

Forecasts for spring and summer flow have been reduced from 5 to 20 percent as a result of the dry, cool February. The strongest flows, percentage-wise, are expected in Warner Valley near Lakeview with forecasts of 104 percent average on Honey Creek and 107 percent on Twentymile Creek for the March-June period. At the opposite end of the scale, the lowest flows are in the order of 80 to 83 percent expected on the main stems of the Crooked and Deschutes rivers.

The flow of most small streams heading in low-elevation watersheds will be slightly below average this year but should furnish near normal amounts of irrigation water.

This evaluation of water supplies is dependent upon a continuation of normal accumulation of snow and a spring snowmelt season favorable for runoff.

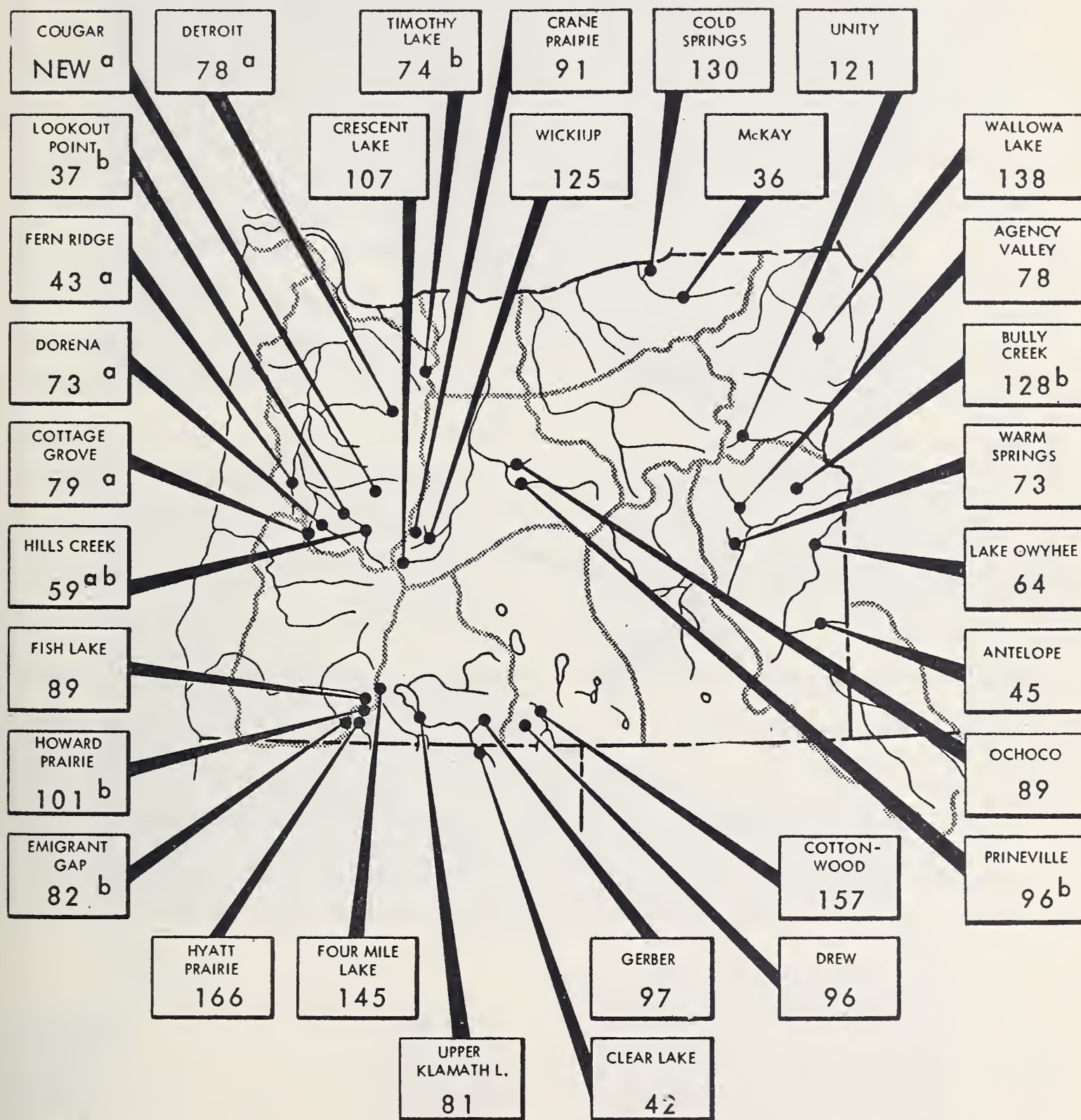
\*From preliminary data furnished by U. S. Weather Bureau and other cooperators.

\*\*From preliminary data furnished by U. S. Geological Survey and other cooperators.



# STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

MARCH 1, 1964



(a) Multiple purpose reservoir - space reserved primarily for flood runoff.

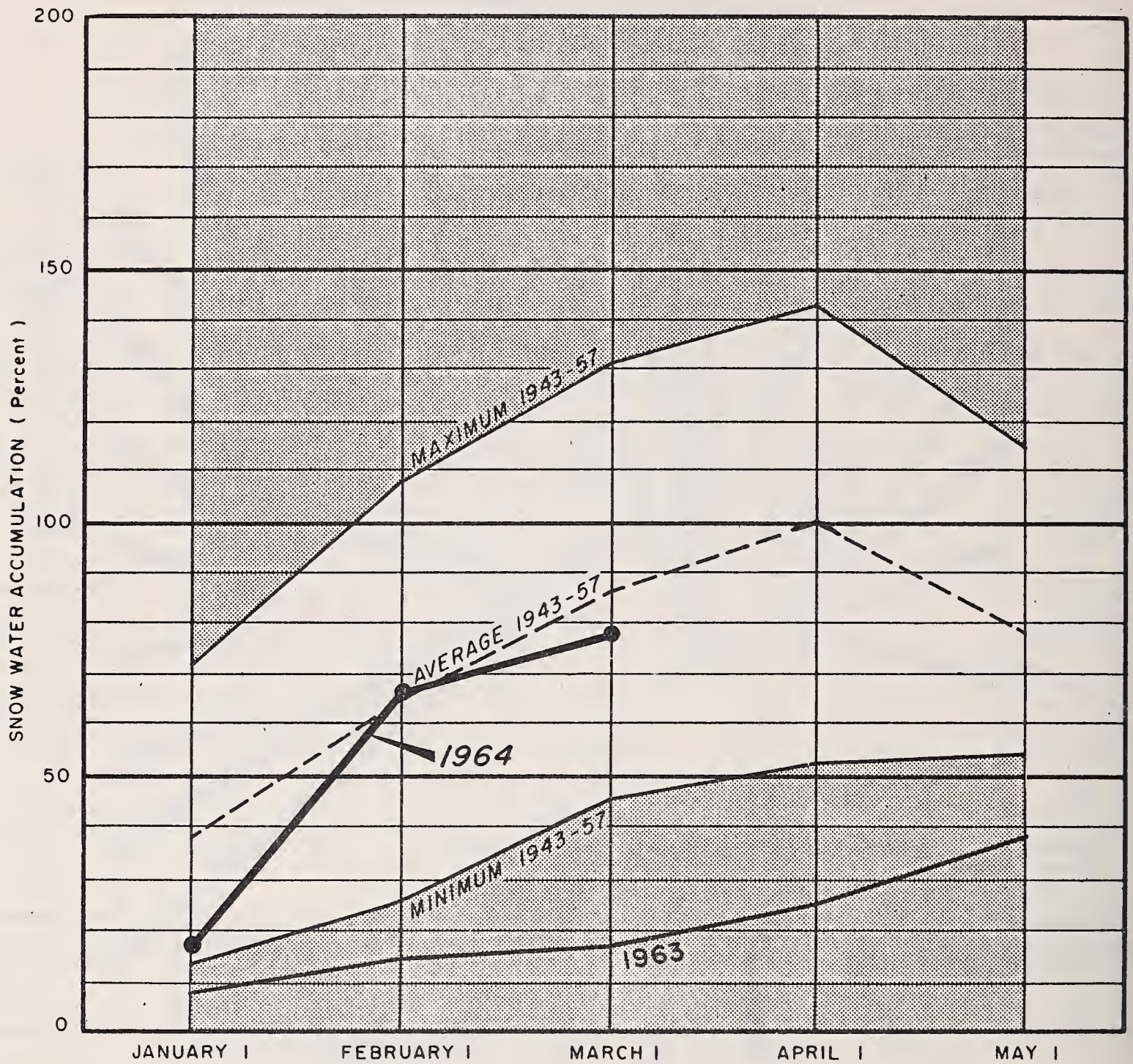
(b) Short record - compared with last year on this date.

N.R. - No report.



# SNOW WATER ACCUMULATION in OREGON

MARCH 1, 1964

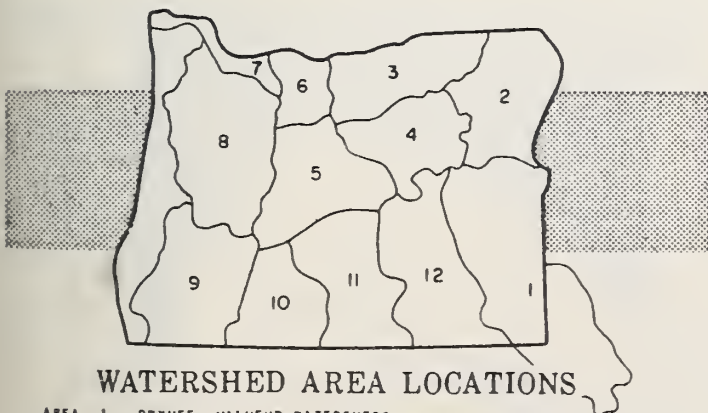
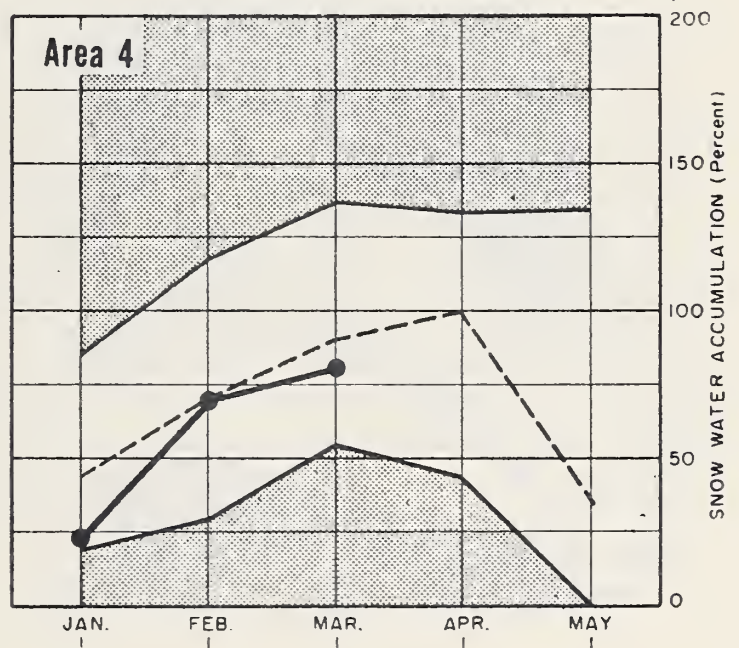
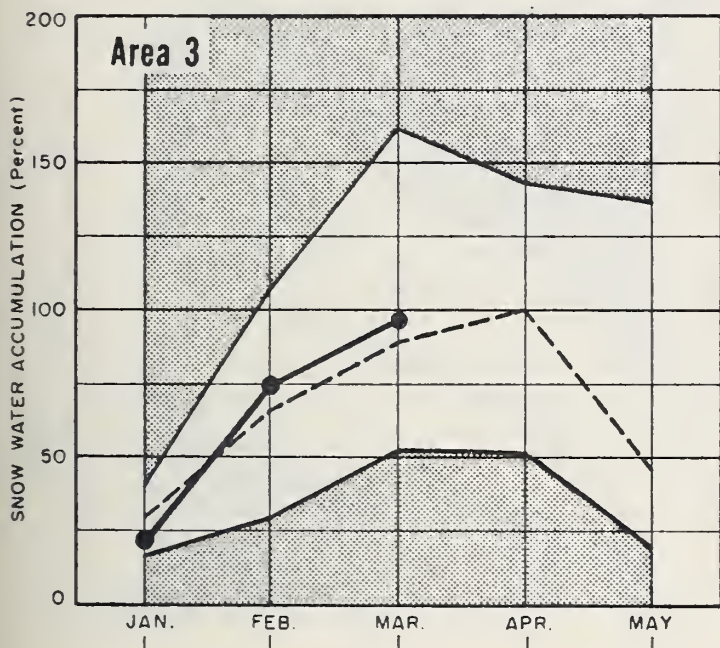
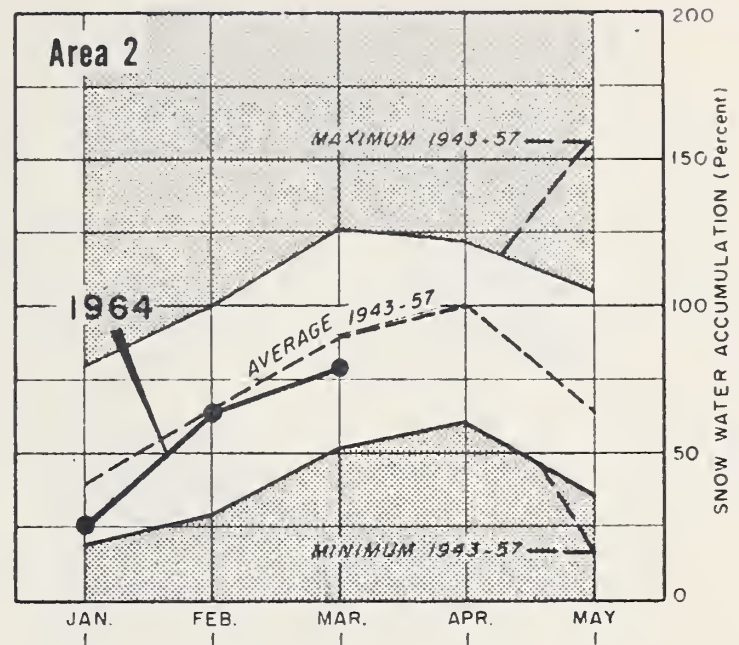
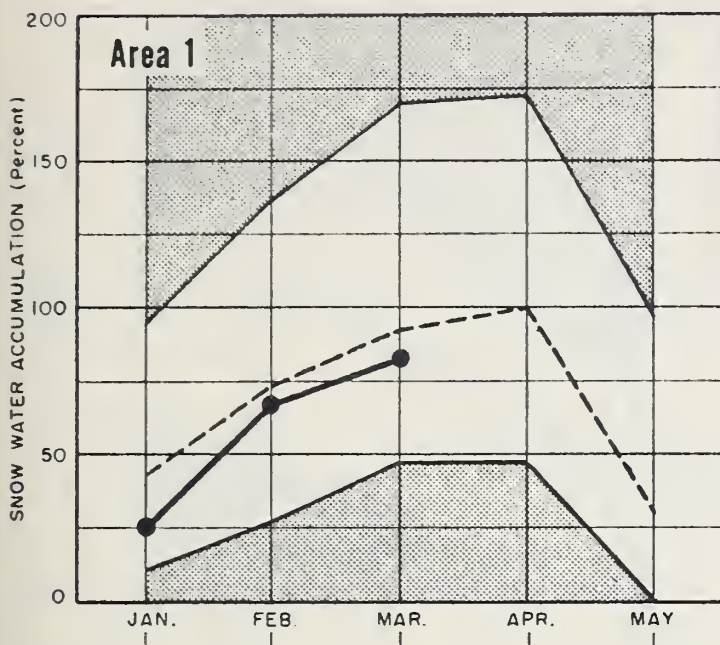




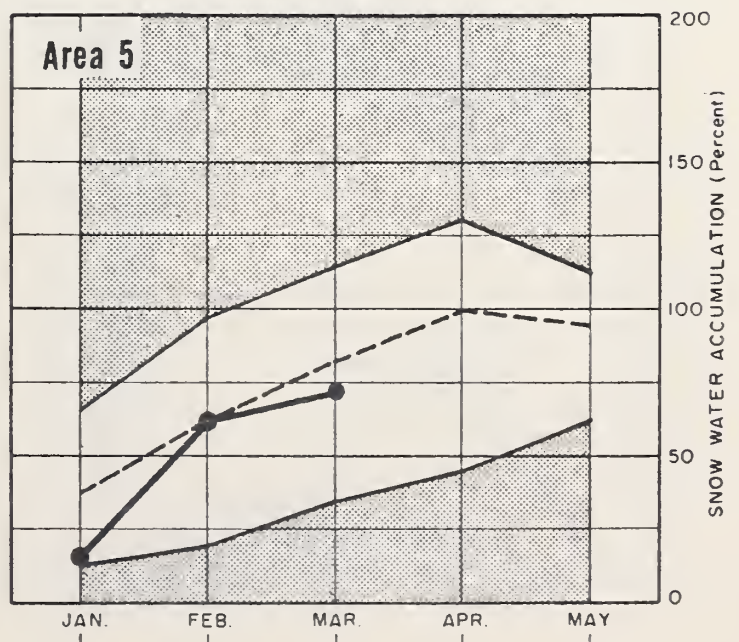
# SNOW WATER ACCUMULATION in OREGON

(Percent of average maximum accumulation)

MARCH 1, 1964



- AREA 1 - DRYMEE, WALHEUR WATERSHEDS
- AREA 2 - BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS
- AREA 3 - UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS
- AREA 4 - UPPER JOHN DAY WATERSHEDS
- AREA 5 - UPPER OESCHUTES, CROCKEY, WATERSHEDS
- AREA 6 - HODO, MILE CREEKS, LOWER DESCHUTES WATERSHEDS
- AREA 7 - LOWER COLUMBIA WATERSHEDS
- AREA 8 - WILLAMETTE WATERSHEDS
- AREA 9 - ROGUE, UMPQUA WATERSHEDS
- AREA 10 - KLAMATH WATERSHEDS
- AREA 11 - LAKE COUNTY, GOOSE LAKE WATERSHEDS
- AREA 12 - HARNEY BASIN WATERSHEDS

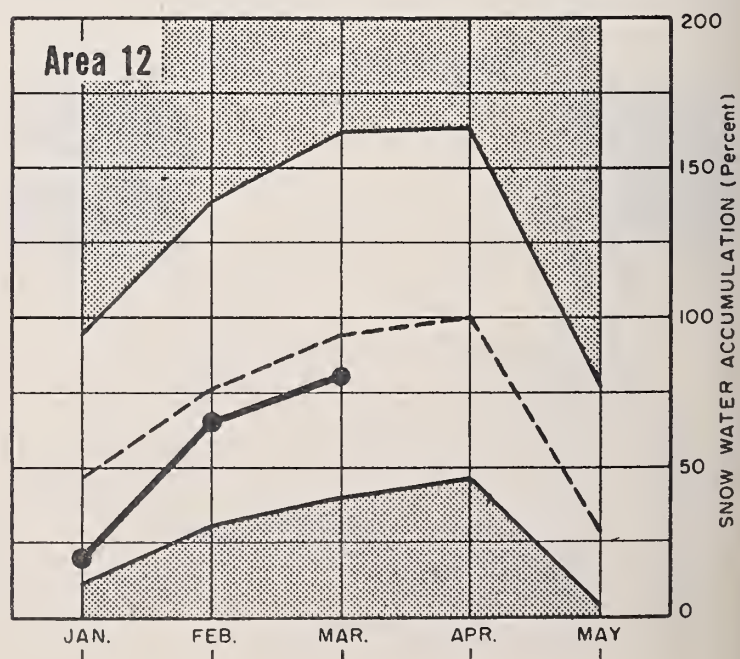
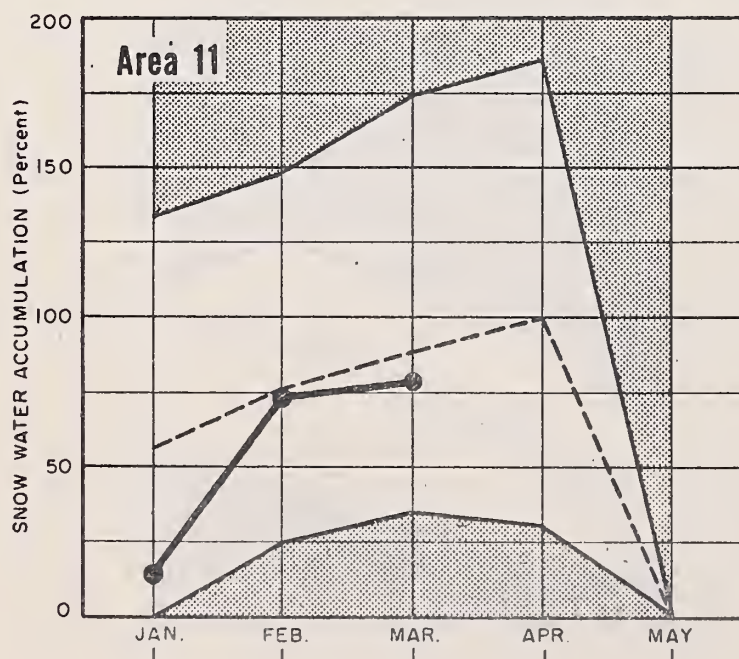
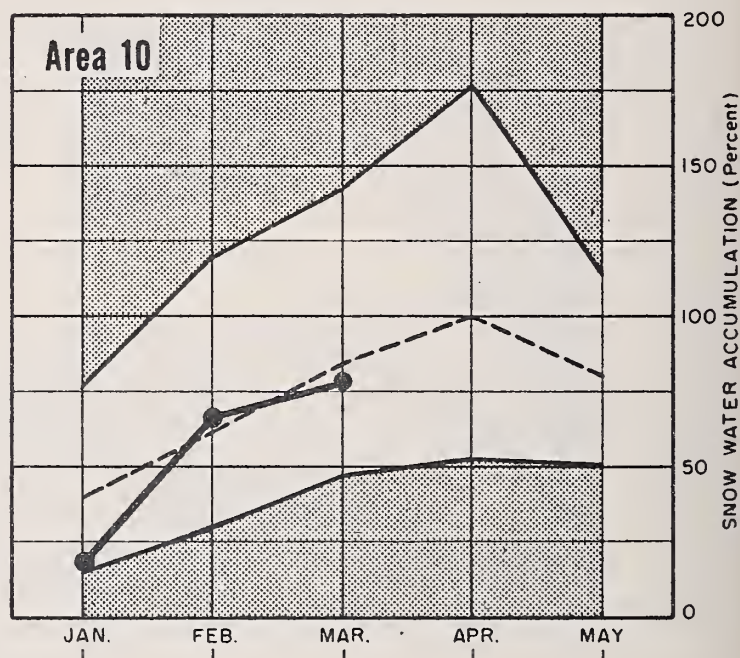
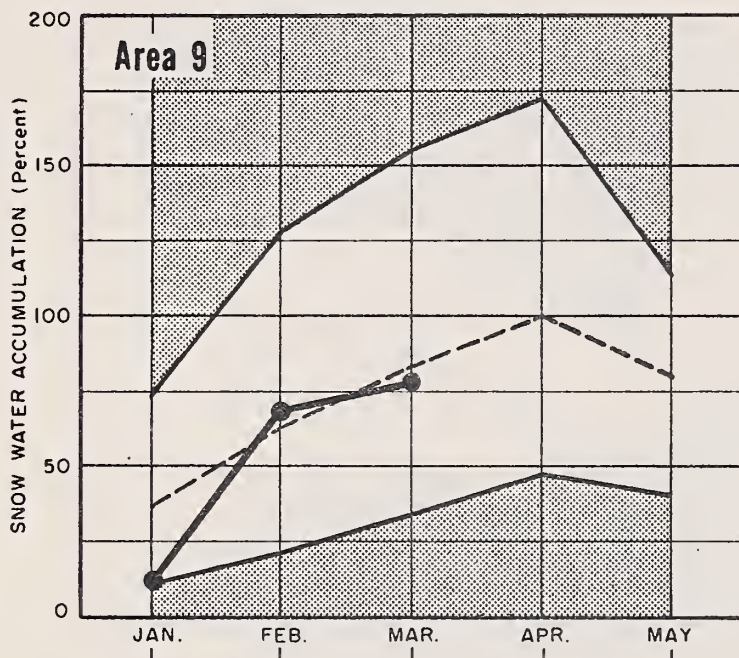
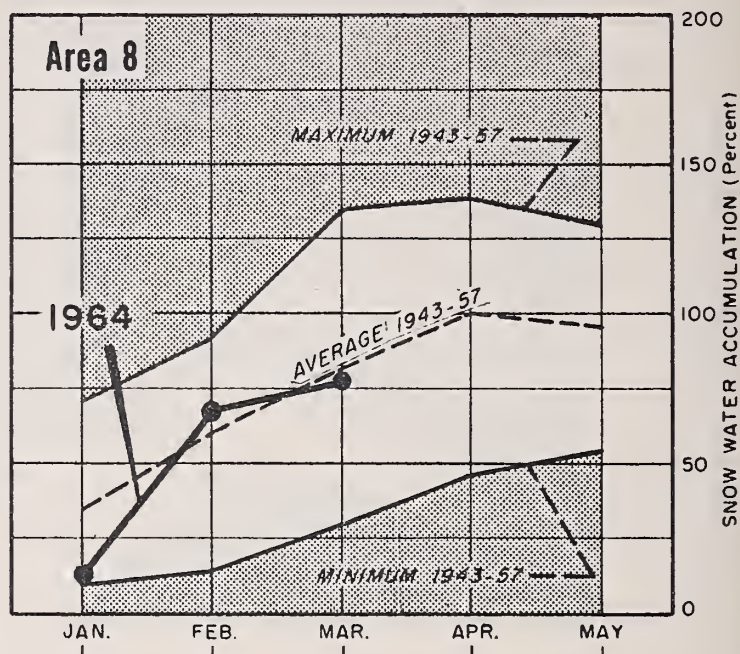
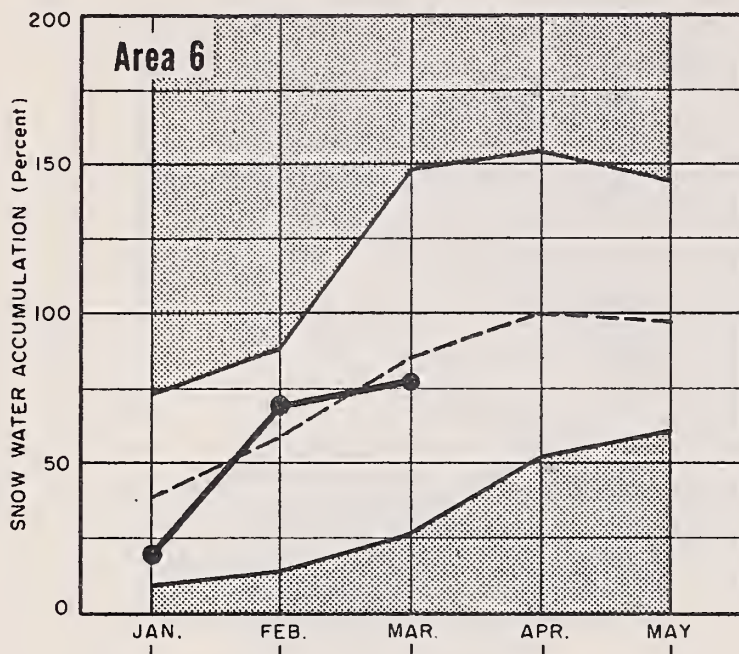




# SNOW WATER ACCUMULATION in OREGON

(Percent of average maximum accumulation)

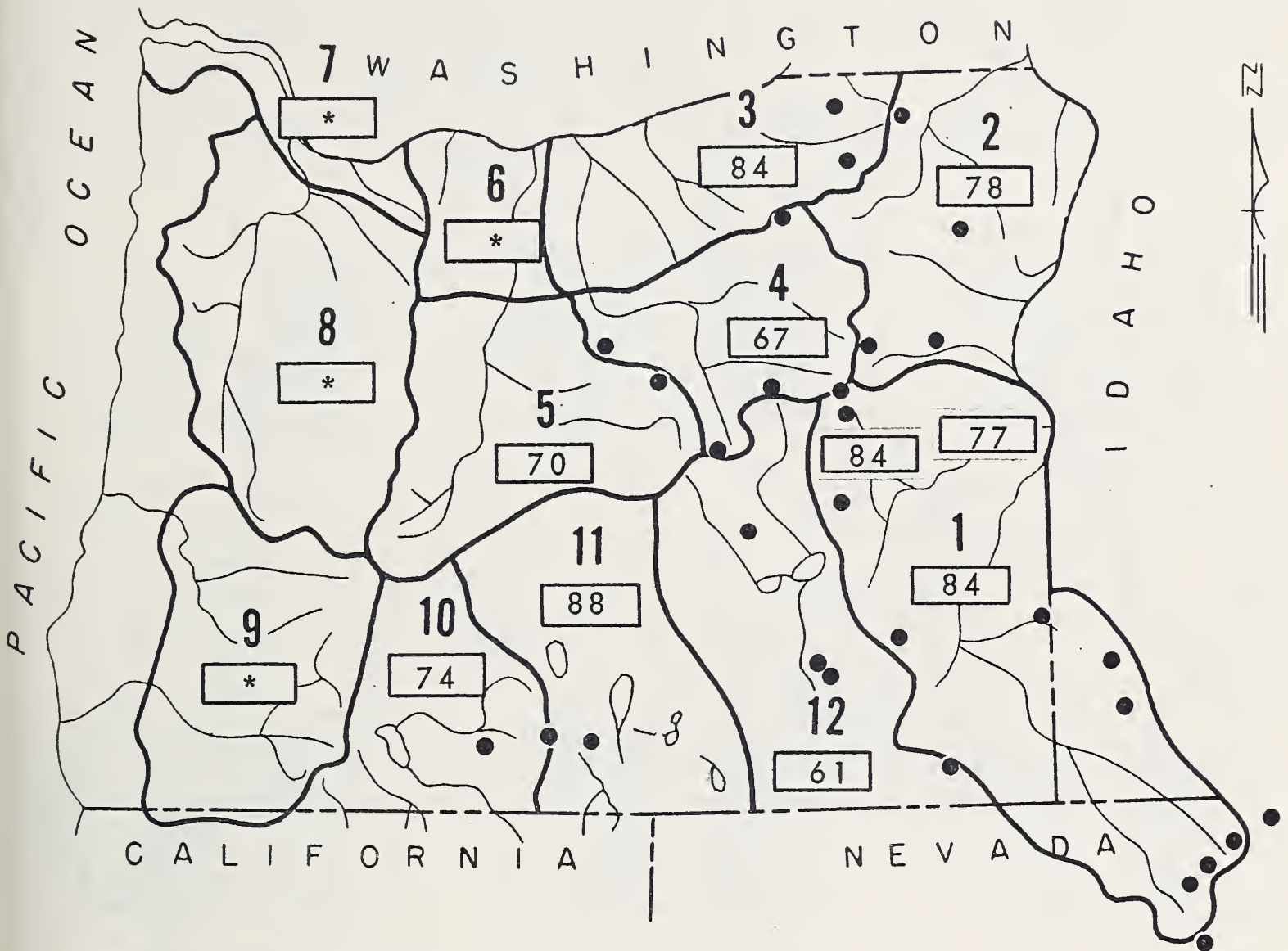
MARCH 1, 1964





# MOUNTAIN SOIL MOISTURE in OREGON as percent of capacity

MARCH 1, 1964



● Soil Moisture Station

\*Moisture studies not yet developed in these areas.

# VALLEY PRECIPITATION in OREGON <sup>a</sup>

MARCH 1, 1964



PRECIPITATION as PERCENT of the 1943 - 57 AVERAGE

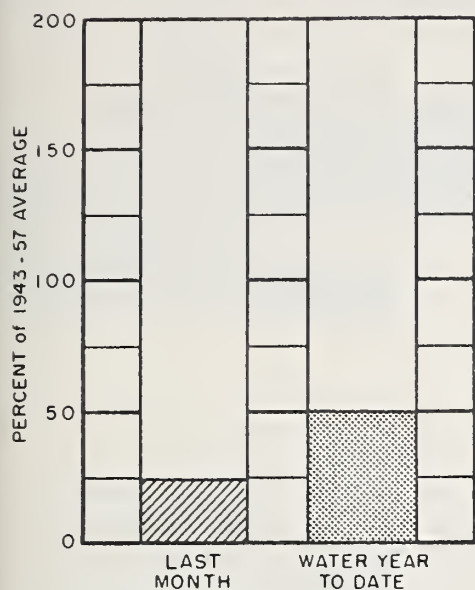
STATION	LAST MONTH	WATER YEAR <sup>b</sup> TO DATE	STATION	LAST MONTH	WATER YEAR <sup>b</sup> TO DATE
BAKER KBKR	57	98	LAKEVIEW	7	107
BEND	11	63	MEDFORD APT.	10	95
BURNS	24	85	NYSSA	12	104
ENTERPRISE	45	67	PENDLETON APT.	7	71
EUGENE APT	18	99	PORTLAND APT.	18	86
HEPPNER	50	77	ROSEBURG APT.	27	91
JOHN DAY	20	83	SALEM APT.	14	86
KLAMATH FALLS APT.	11	86	THE DALLES	5	72

( a ) Preliminary data furnished by the U.S. Weather Bureau. ( b ) Oct. 1 to date. ( c ) Report delayed.

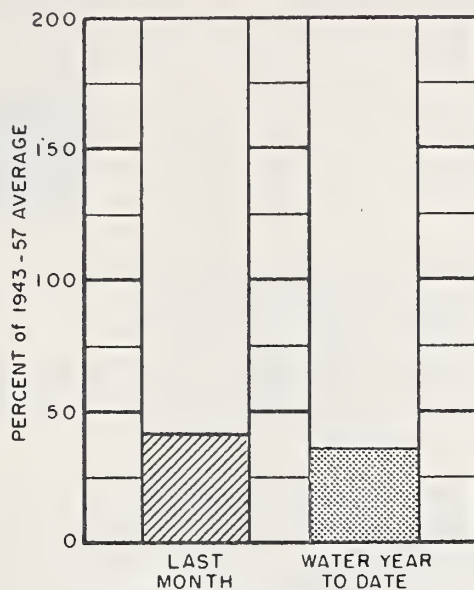


# CURRENT OREGON STREAMFLOW

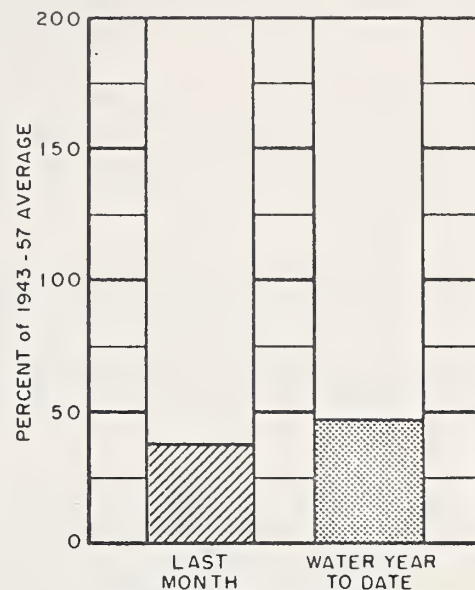
MARCH 1, 1964



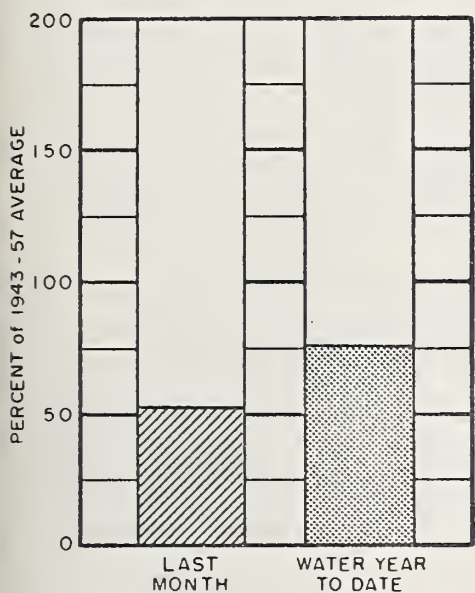
Owyhee Lake net inflow



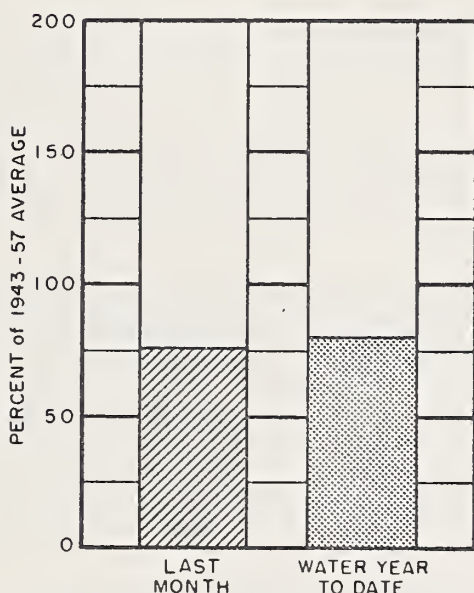
Umatilla near Umatilla



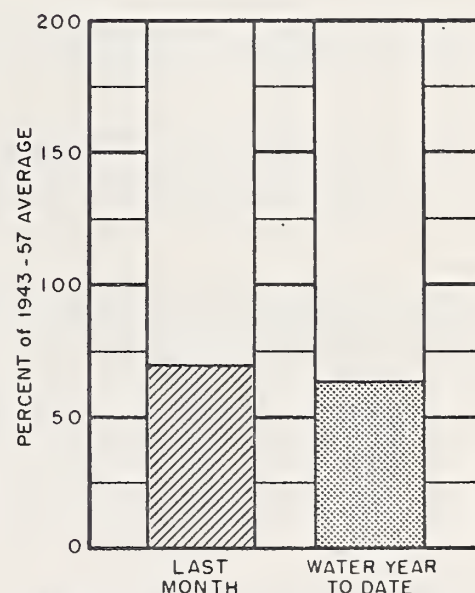
John Day at Service Creek



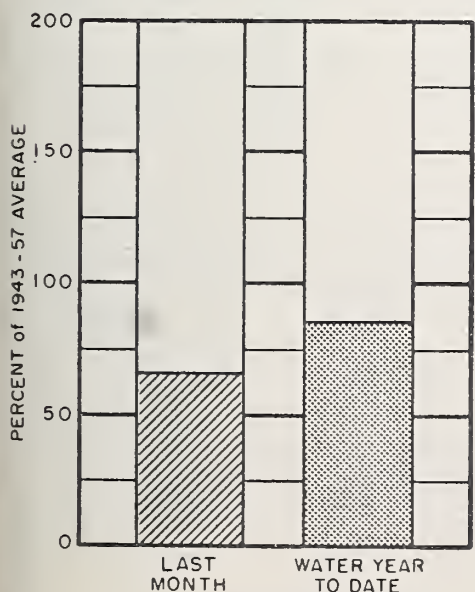
Deschutes at Moody



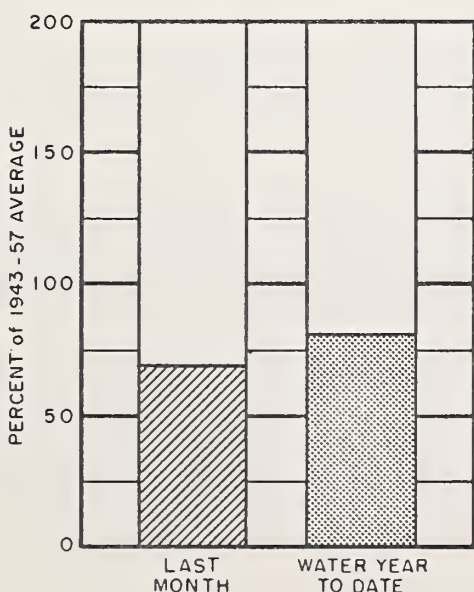
Hood and conduit near Hood River



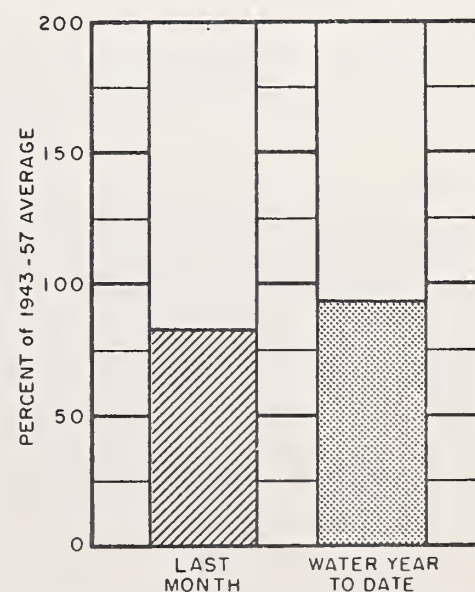
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow







# WATER SUPPLY OUTLOOK OWYHEE, MALHEUR WATERSHEDS

OREGON

*as of*  
MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

**GENERAL OUTLOOK** - The satisfactory outlook for 1964 irrigation water supplies in Malheur County, foreseen one month ago, has been "dimmed" slightly by clear, cold February weather which brought nearly record-low precipitation and greatly reduced streamflow. Inflow to the counties' all-important storage reservoirs has fallen off to a mere trickle in many cases with streams thawing slightly at mid-day but freezing up every night.

**SNOW COVER** - Water content of the mountain snowpack increased very slightly during the past month and is now 88 percent of the March first average. One year ago the snow was only 18 percent of this average.

Aerial flights verify that the 6" to 24" blanket of snow reported last month is still present on hundreds of square miles of the broad plateau region of the Owyhee. Thawing weather coupled with warm rains could easily produce substantial runoff into Lake Owyhee.

**SOIL MOISTURE** - The soil mantle under the snowpack is well re-charged by fall rains and now averages 77 percent of capacity on the Malheur and 84 percent of capacity on the Owyhee watersheds. This will favor a satisfactory runoff from melting snow.

**RESERVOIR STORAGE** - As of March 1 Warm Springs Reservoir held 60,620 acre feet; Agency Valley held 26,120 a.f. and Bully Creek, 6,450 acre feet for a total of 93,190 acre feet stored for the Vale-Oregon and the Warm Springs Irrigation Districts. A year ago this figure was about 110,000 acre feet. This supply is satisfactory for 1964 when combined with forecasted flow of streams yet to come.

Lake Owyhee held 303,250 acre feet on March 1 compared with 342,200 acre feet a year ago. Coupled with expected streamflow this will be an adequate supply for the season although this reservoir was designed to hold a two year supply and has not been filled since 1958.

Antelope Reservoir now holds only 4,540 acre feet compared with 10,800 a.f. one year ago. Jordan Valley Irrigation District has been hampered in filling this reservoir by the continuous cool weather which has greatly reduced the water flowing from the mountains.

**STREAMFLOW** - Forecasts of flow of Malheur County streams have dropped off from 15 to 20 percent but remain in the range of 80 to 90 percent of average. Flow of the Malheur near Drewsey is forecast at 83 percent for the March-July period while the North Fork at Beulah is expected to produce 90 percent of average in the same period.

Inflow to Lake Owyhee is forecast at 94 percent of average during March-July with a possibility that the reservoir will fill.

Flow of smaller streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek	Average	Average
Bully Creek	Average	Average
Cow Creek	Average	Average
Jordan Creek	Average	Average
Jordan Valley Irrig. Dist.	Average	Average
McDermitt Creek	Average	Average
Oregon Canyon Creek	Average	Average
Owyhee Project	Average	Average
Succor Creek	Average	Average
Tenmile Creek	Average	Average
Vale Oregon Irrig. Dist.	Average	Average
Warm Springs Irrig. Dist.	Average	Average
Willow Creek (Reservoired)	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Agency Valley	60.0	26.1	35.6	33.6
Antelope	55.0	4.5	10.8	10.1
Bully Creek	31.0	6.4	- -	- -
Owyhee	715.0	303.2	342.2	473.1
Warm Springs	191.0	60.6	71.9	83.0

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
2140	Malheur near Drewsey	65	April-Sept.	81	80
		90	March-July	108	83
2175	Malheur, North Fork at Beulah <sup>d</sup>	66	March-July	73	90
		55	April-Sept.	64	86
1825	Owyhee Reservoir net Inflow <sup>k</sup>	385	April-Sept.	430	90
		495	March-July	524	94

# SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
	NAME						
	ELEVATION						
Bear Creek (Nev.)	7800	72	16.9	<sup>b</sup>			
Big Bend (Nev.)	6700	48	16.7	2/26/64	15.7	14.8	13.5 <sup>f</sup>
Blue Mountain Springs	5900	42	16.9	2/27/64	7.4	13.5	7.9
Crane Prairie	5375	48	18.2	2/26/64	14.7	16.3	14.0
Folly Farm	4450	30	12.5	12/19/63	8.3 <sup>f</sup>	9.0 <sup>f</sup>	10.0
Jack Creek, Lower (Nev.)	6800	48	8.7	1/2/64	8.0 <sup>f</sup>	7.9	8.4
Jordan Valley	4250	48	19.3	12/19/63	14.6 <sup>f</sup>	14.9 <sup>f</sup>	14.8
Mud Flat (Ida.)	5500	48	12.8	2/26/64	9.4	11.0	9.2
Rodeo Flat (Nev.)	6800	42	11.0	1/28/64	10.4 <sup>f</sup>	10.5	11.0
Stinking Water Summit	4800	48	21.9	12/19/63	20.8 <sup>f</sup>	21.1 <sup>f</sup>	20.6
Taylor Canyon (Nev.)	6200	48	15.1	1/27/64	12.6 <sup>f</sup>	12.4	14.6
Triangle (Ida.)	5150	48	16.2	2/26/64	11.5	14.0	13.9 <sup>f</sup>

# SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Antelope Ridge (Ida.)	5900	2/26	27	8.5	0.0	- -
Barney Creek	5950	2/27	22	6.8	0.8	7.7 <sup>h</sup>
Battle Creek <sup>e</sup> (Ida.)	5700	2/27	25	6.8	0.2	- -
Bear Creek (Nev.)	7800	2/27	51	12.8	9.4	17.1 <sup>h</sup>
Big Bend (Nev.)	6700	2/26	30	8.5	0.6	8.9
Blue Mountain Springs	5900	2/26	40	12.9	6.9	16.2

Continued

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records. (l) Ground measurement





# Owyhee, Malheur Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Buck Pasture <sup>e</sup>	5700	2/27	18	6.1	0.3	- -
Buckskin, Lower (Nev.)	6700	2/25	25	6.9	T	8.4 <sup>h</sup>
Buckskin, Upper (Nev.)	7200	2/25	19	5.5	2.4	7.9 <sup>h</sup>
Bull.Basin <sup>e</sup> (Ida.)	5600	2/27	6	1.6	0.2	- -
Bully Creek <sup>e</sup>	5300	2/27	12	3.5	0.0	- -
Call Meadow <sup>e</sup>	5340	2/27	12	3.5	0.0	- -
Columbia Basin <sup>e</sup> (Nev.)	6650	b				
Cottonwood-Indian <sup>e</sup>	4320	2/27	3	0.9	0.0	- -
Crane Prairie	5375	2/26	32	9.0	0.0	9.6
Crow Camp <sup>e</sup>	5500	2/27	10	2.9	0.3	- -
Disaster Peak (Nev.)	6500	3/2	38	13.1	0.0	14.5 <sup>h</sup>
Eldorado Pass	4600	2/27	17	4.9	0.0	- -
Fish Creek	7900	2/26	65	21.5	14.3	- -
Flag Prairie <sup>e</sup>	4750	2/27	24	7.0	0.0	- -
Fox Creek (Nev.)	6800	2/27	35	10.2	2.0	8.4 <sup>h</sup>
Fry Canyon (Nev.)	6700	2/26	25	6.0	0.0	8.2 <sup>h</sup>
Gold Creek (Nev.)	6600	2/26	27	7.8	0.0	6.3 <sup>h</sup>
Granite Peak (Nev.)	7800	2/26	24	7.2	8.4	10.6
Hyde Pasture (Ida.)	5800	2/26	23	7.2	0.0	- -
Jack Creek, Lower (Nev.)	6800	b				
Jack Creek, Upper (Nev.)	7250	b				
Jacks Peak (Nev.)	8420	b				
Lake Creek	5120	2/26	33	9.7	2.8	10.7
Logan Valley <sup>e</sup>	5100	2/27	27	7.8	0.0 <sup>l</sup>	- -
Lookout Butte <sup>e</sup>	5650	2/27	0	0.0	0.2	- -
Louse Canyon <sup>e</sup>	6440	2/27	5	1.5	0.0	- -
Martin Creek (Nev.)	6700	2/25	25	6.6	T	8.2
Midas (Nev.)	7200	b				
Mud Flat (Ida.)	5500	2/26	27	7.3	0.0	- -
Oregon Canyon <sup>e</sup>	6950	2/27	20	6.0	0.9	- -
Quinn Ridge <sup>e</sup> (Nev.)	6300	2/27	7	2.1	0.0	- -
Red Canyon <sup>e</sup> (Ida.)	6500	2/27	27	7.3	0.6	- -
Rock Spring	5100	2/27	20	4.9	0.1	5.9
Rodeo Flat (Nev.)	6800	2/26	22	5.7	T	8.2
76 Creek (Nev.)	7100	b				
Silver City (Ida.)	6400	3/1	49	14.1	1.4	14.8 <sup>h</sup>
Silvies	6900	2/26	33	11.2	2.0	- -
South Mountain #2 (Ida.)	6340	2/26	36	12.0	1.6	11.4
Stag Mountain <sup>e</sup> (Nev.)	7700	b				
Stinking Water	4800	2/26	16	4.1	0.0	4.0 <sup>h</sup>
Succor Creek <sup>e</sup> (Ida.)	6100	2/27	27	7.8	0.4	- -
Taylor Canyon (Nev.)	6200	2/27	18	4.6	0.0	5.0
Toe Jam <sup>e</sup> (Nev.)	7700	b				
Tremewan Ranch (Nev.)	5700	2/27	11	3.2	0.0	1.9
Triangle (Ida.)	5150	2/26	8	2.8	0.1	- -
Trout Creek <sup>e</sup>	7800	2/27	18	5.4	3.6	- -
"V" Lake <sup>e</sup>	6600	2/27	12	4.1	0.8	- -

"The Conservation of Water begins with the Snow Survey"





# WATER SUPPLY OUTLOOK BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in Baker, Union and Wallowa counties, foreseen one month ago, has been "dimmed" slightly by clear, cold February weather which brought near record-low precipitation and reduced streamflow. Inflow to reservoirs was exceptionally low but total stored water is satisfactory.

## SNOW COVER

Water content of the mountain snowpack increased at a below average rate but is now 90 percent of average on the Grande Ronde, 82 percent of average on the Powder River and 92 percent on the Burnt River. Water content of the snow one year ago on March 1 was about 36 percent average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is now up to 78 percent of capacity and indicates that these soils will still absorb some snowmelt water at the time of spring runoff.

## RESERVOIR STORAGE

Inflow to reservoirs has definitely been limited because of "short" precipitation. Wallowa Lake now holds 22,190 acre feet compared with 24,600 a year ago. The average figure for March 1 storage is 16,100 acre feet.

Unity Reservoir contains 11,030 acre feet which is better than the 9,100 a. f. average but short of the 19,600 acre feet held at this time last year.

## STREAMFLOW

Forecasts have dropped from 4 to 16 percent from the estimates of last month but are still up in the range of 82 to 93 percent of average.

Flow of the Grande Ronde is forecast at 200,000 acre feet or 82 percent average in the March-September period. Catherine Creek, a southern tributary, is forecast at 93 percent or 68,000 acre feet April through September. Bear Creek, Lostine River, Hurricane Creek and East Fork of Wallowa River are forecast at 84, 84, 85 and 90 percent respectively in the irrigation season.

Imnaha River is forecast to flow 270,000 acre feet or 86 percent average in the April-September period.

Powder River near Baker is forecast to flow 57,000 acre feet or 86 percent average April through September. Burnt River should flow 40,000 acre feet or 89 percent average in the same period.

Flow of most small streams heading in low-elevation watersheds will be near average.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope	Average	Average
Baker Valley	Average	Average
Big Creek	Average	Average
Clover Cr. (nr. No. Powder)	Average	Average
Cove	Average	Average
Durkee	Average	Average
Eagle Valley	Average	Average
Elgin	Average	Average
Enterprise-Joseph	Average	Average
Hereford-Bridgeport	Average	Average
Imnaha River	Average	Average
LaGrande-Island City	Average	Average
Lostine-Wallowa	Average	Average
No. Powder River-Wolf Cr.	Average	Average
Pine Valley	Average	Average
Powder River-Elk Creek	Average	Average
Summerville	Average	Average
Sumpter Valley	Average	Average
Union-Hot Lake	Average	Average
Unity	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Unity	25.2	11.0	19.6	9.1
Wallowa Lake	37.5	22.2	24.6	16.1

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of March 1, 1964

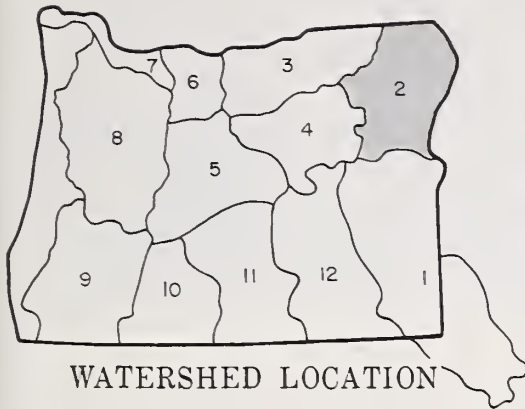
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
3305	Bear near Wallowa	62	April-Sept.	74	84
2730	Burnt near Hereford <sup>d</sup>	40	April-Sept.	45	89
		46	March-June	51	90
3200	Catherine near Union	68	April-Sept.	73	93
3190	Grande Ronde at LaGrande	200	March-Sept.	245	82
3295	Hurricane near Joseph	42	April-Sept.	49	85
2920	Imnaha at Imnaha	270	April-Sept.	314	86
3300	Lostine near Lostine	112	April-Sept.	133	84
2755	Powder near Baker	57	April-Sept.	66	86
		56	April-July	65	86
3250	Wallowa, East Fork near Joseph <sup>d</sup>	11.5	March-Sept.	12.8	90
		9.4	March-July	10.4	90

# SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Summit	5100	36	16.8	2-28-64	9.6	13.0	7.2
Emigrant Springs	3925	48	22.3	2-24-64	20.3	20.7	18.3 <sup>f</sup>
Tollgate	5070	48	23.6	2-26-64	19.2	21.4	21.4

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



10 0 10 20 30  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▲ Soil Moisture Station
- ✕ Aerial Snow Depth Gage



## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Aneroid Lake #1	7480	2/29	73	25.5	21.0	33.4 <sup>h</sup>
Aneroid Lake #2	7000	2/29	62	21.8	14.7	26.2 <sup>h</sup>
Anthony Lake	7125	2/27	71	22.1	11.3	25.2 <sup>h</sup>
Bald Mountain <sup>e</sup> (Ore.)	6700	2/27	74	23.7	9.4	- -
Barney Creek	5950	2/27	22	6.8	0.8	7.7 <sup>h</sup>
Beaver Reservoir	5340	2/25	36	9.9	4.2	10.6
Big Sheep <sup>e</sup>	6200	2/24	72	24.5	6.0	- -
Blue Mountain Summit	5098	2/28	30	8.8	1.8	8.8
Bourne	5800	2/25	42	12.2	5.5	16.5 <sup>h</sup>
County Line	4800	2/28	22	6.0	0.0	7.6 <sup>h</sup>
Dooley Mountain	5430	2/27	28	8.1	0.5	8.8
Eilertson Meadows	5400	2/23	34	9.8	0.0	11.1 <sup>h</sup>
Eldorado Pass	4600	2/27	17	4.9	0.0	- -
Gold Center	5340	2/25	36	10.5	4.1	12.8 <sup>h</sup>
Goodrich Lake <sup>e</sup>	6775	2/25	77	22.3	16.4	32.1 <sup>h</sup>
Little Alps	6200	2/27	39	10.7	3.0	- -
Lucky Strike	5050	2/25	39	10.6	5.4	12.3
Meacham	4300	2/24	43	11.7	0.0	9.9
Mirror Lake <sup>e</sup>	8200	2/24	167	56.8	44.8	- -
Moss Spring	5850	2/26	63	19.9	4.7	22.4
Schneider Meadows	5400	2/27	70	25.3	15.1	29.5 <sup>h</sup>
Schoolmarm	4775	2/28	22	5.8	0.0	6.4 <sup>h</sup>
Standley <sup>e</sup>	7400	2/24	88	28.2	11.6	- -
Taylor Green	5740	2/24	39	11.8	3.8	- -
Tipton	5100	2/28	33	10.8	2.5	11.0 <sup>h</sup>
Tollgate	5070	2/26	84	29.1	5.9	26.7
TV Ridge <sup>e</sup>	5670	2/24	7	2.2	0.0	- -

*"The Conservation of Water begins with the Snow Survey"*



# WATER SUPPLY OUTLOOK UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

OREGON

*as of*

MARCH 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in the Umatilla-Walla Walla watersheds, foreseen one month ago, has been "dimmed" slightly by clear, cold February weather which brought near record-low precipitation and greatly reduced streamflow. Inflow to the areas' all-important storage reservoirs has been very inadequate.

## SNOW COVER

Water content of the mountain snowpack increased slightly during the month and is now 105 percent of the 15 year average for March first. Percentage-wise this is the best snowpack in the state.

## SOIL MOISTURE

The soil mantle under the snowpack is well re-charged and averages 84 percent of capacity. These moist soils will favor a satisfactory snowmelt runoff next spring.

## RESERVOIR STORAGE

Cold Springs Reservoir is now full at 50,000 acre feet compared with 43,900 a.f. one year ago at this date. The average is 38,600 acre feet.

McKay Reservoir holds 16,000 acre feet compared with 31,200 a.f. one year ago and an average storage of 44,100 on March first. With reasonable runoff conditions this storage figure will "top out" at about 45,000 acre feet -- a limited supply for the 1964 irrigation season.

## STREAMFLOW

Forecasts of streamflow have dropped off slightly since last month but remain in the 90 to 99 percent of average range.

Flow of the South Fork of the Walla Walla is forecast at 74,000 acre feet or 99 percent average for the March-July period. This stream should furnish about average water supplies. Flow of Couse, Dry and Pine creeks should also be close to average.

Flow of the Umatilla at Pendleton is forecast at 96 percent average in the April-July period. McKay Creek should flow 41,000 acre feet or 94 percent average in the March-July period -- an insufficient amount for the seasons' needs.

Butter Creek is forecast to flow 97 percent average March through July and other similar streams should produce near average water supplies.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek	Average	Average
Butter Creek	Average	Average
Dry Creek	Average	Average
Dugger Creek	Average	Average
Johnson Creek	Average	Average
McKay Creek	Average	Average
Mill Creek	Average	Average
Mud Creek	Average	Average
Pine Creek	Average	Average
Rhea Creek	Average	Average
Rock Creek	Average	Average
Umatilla River (Cold Springs Reservoir)	Average	Average
Umatilla River, Main	Average	Average
Umatilla River (McKay Res.)	Average	Fair
Walla Walla River, Little	Average	Average
Walla Walla River, Main	Average	Average
Walla Walla River, No. Fork	Average	Average
Walla Walla River, So. Fork	Average	Average
Willow Creek	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cold Springs	50.0	50.0	43.9	38.6
McKay	73.8	16.0	31.2	44.1

## STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
0320	Butter Creek near Pine City	13.6	March-July	14.0	97
0225	McKay near Pilot Rock	41	March-July	48	94
		28	April-Sept.	31	90
0200	Umatilla near Gibbon	90	April-Sept.	96	94
0210	Umatilla at Pendleton	180	April-Sept.	187	96
		175	April-July	182	96
0100	Walla Walla, South Fork near Milton	87	March-Sept.	89	98
		74	March-July	75	99

## SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME		ELEVATION					
*Athena-Weston	1700	48	18.7	2/26/64	13.3	16.0	16.8
Battle Mountain Summit	4340	48	13.8	2/25/64	12.7	13.4	11.7
Emigrant Springs	3925	48	22.3	2/24/64	20.3	20.7	18.3 <sup>f</sup>
Tollgate	5070	48	23.6	2/26/64	19.2	21.4	21.4
*Errata: Athena Weston published in error last month. Should read 13.2.							

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Arbuckle Mountain	5400	2/25	38	10.3	0.0	11.1 <sup>h</sup>
Battle Mountain Summit	4340	2/25	11	2.6	0.0	- -
Blue Mountain Camp	4300	2/26	59	20.0	0.1	- -
Emigrant Springs	3925	2/24	31	8.9	0.0	7.3
Lucky Strike	5050	2/25	39	10.6	5.4	12.3
Meacham	4300	2/24	43	11.7	0.0	9.9
Tollgate	5070	2/26	84	29.1	5.9	26.7
Weston Mountain	2700	2/26	0	0.0	0.0	- -

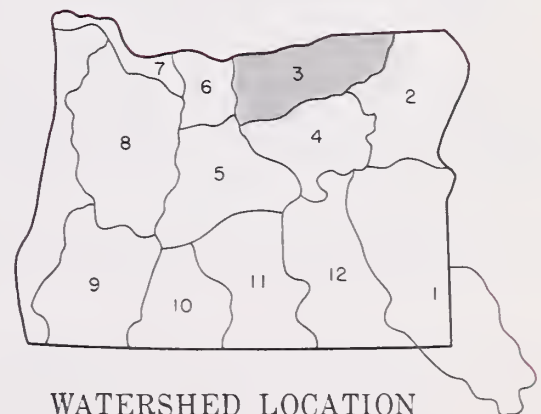
(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▶ Soil Moisture Station









# WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS

OREGON

*as of*  
MARCH 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in the Upper John Day basin, foreseen one month ago, has been "dimmed" slightly by clear, cool February weather which brought near record-low precipitation and reduced streamflow. Watershed soils are still not fully re-charged with moisture.

## SNOW COVER

Water content of the mountain snowpack increased at a below average rate but is now 88 percent of the March 1 average. A year ago on this date the snowpack was only 27 percent of average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is 67 percent of capacity. Watershed soils will therefore soak up some of the snowmelt water in the spring run-off and reduce total streamflow.

## STREAMFLOW

Forecasts of streamflow in the John Day basin have dropped from 3 to 13 percent from the estimates of last month but are still up in the 84 to 92 percent range.

Flow of the Middle Fork of the John Day at Ritter is forecast at 143,000 acre feet or 90 percent average for the period March through July. Similarly, flow of the main John Day river at Prairie City is forecast at 54,000 acre feet or 92 percent for the same 5 months. Strawberry Creek near Prairie City is forecast to produce 7,600 acre feet or 84 percent of average in the six months, April through September.

Flow of smaller streams such as Indian, Pine, Mountain and Rock Creeks plus Beech, Fox, Long, Camas and Cherry Creeks is expected to be only slightly below average this year during the irrigation season.

Good water supplies seem assured for all of the John Day country if normal weather conditions prevail from now until the end of summer.

Flow of the John Day River at Service Creek\* has averaged 47 percent since October 1 but only 37 percent during February.

\*Preliminary data from the U. S. Geological Survey, Portland, Oregon.



## WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

## RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Beech Creek	Average	Average
Beech Creek-Fox-Long Cr.	Average	Average
Bridge-Mountain Creeks	Average	Average
Camas Creek	Average	Average
Cherry Creek	Average	Average
Indian-Pine Creeks	Average	Average
John Day River, Main Fork	Average	Average
John Day River, Mid. Fork	Average	Average
John Day River, N. Fork	Average	Average
John Day River, S. Fork	Average	Average
Monument-Kimberly	Average	Average
Strawberry Creek	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943 - 57 AVERAGE

**STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)** as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
NO.	NAME				
0385	John Day at Prairie City	48	April-Sept.	54	89
		54	March-July	59	92
0440	John Day, Middle Fork at Ritter	120	April-Sept.	135	89
		143	March-July	158	90
0375	Strawberry near Prairie City	7.6	April-Sept.	9.1	84

## SOIL MOISTURE

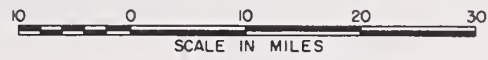
SOIL MOISTURE		PROFILE (Inches)		SOIL MOISTURE (Inches)			
STATION		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Battle Mountain Summit	4340	48	13.8	2-25-64	12.7	13.4	11.7
Blue Mountain Springs	5900	42	16.9	2-27-64	7.4	13.5	7.9
Blue Mountain Summit	5100	36	16.8	2-28-64	9.6	13.0	7.2
Derr	5670	24	9.0	b			
Marks Creek	4540	36	14.1	2-26-64	9.2	11.9	11.8
Snow Mountain	6300	48	16.7	2-25-64	12.3	14.8	14.8
Starr Ridge	5150	36	10.6	2-27-64	8.3	10.5	8.8

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
					LAST YEAR	1943-57 AVERAGE
Anthony Lake	7125	2/27	71	22.1	11.3	25.2 <sup>h</sup>
Arbuckle Mountain	5400	2/25	38	10.3	0.0	11.1 <sup>h</sup>
Battle Mountain Summit	4340	2/25	11	2.6	0.0	- -
Beech Creek Summit	4800	2/27	17	4.8	0.0	5.8
Blue Mountain Springs	5900	2/26	40	12.9	6.9	16.2
Blue Mountain Summit	5098	2/28	30	8.8	1.8	8.8
Derr	5670	2/28	31	9.4	0.4	- -
East Fork Canyon <sup>e</sup>	5700	2/27	36	11.5	T	- -
Gold Center	5340	2/25	36	10.5	4.1	12.8 <sup>h</sup>
Indian Creek Butte <sup>e</sup>	6550	2/27	60	19.2	10.8	- -
Izee Summit	5293	2/27	27	7.1	1.1	8.1
Lucky Strike	5050	2/25	39	10.6	5.4	12.3
Marks Creek	4540	2/26	16	4.8	0.0	4.1
Ochoco Meadows	5200	2/27	29	8.1	0.0	10.3
Olive Lake	6000	2/26	53	16.8	6.9	18.6
Schoolmarm	4775	2/28	22	5.8	0.0	6.4 <sup>h</sup>
Snow Mountain	6300	2/25	36	10.5	5.5	13.0 <sup>h</sup>
Starr Ridge	5150	2/27	19	5.2	0.0	6.0
Tipton	5100	2/28	33	10.8	2.5	11.0 <sup>h</sup>
Williams Ranch	4500	2/27	8	3.5	0.0	- -

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# UPPER JOHN DAY WATERSHEDS



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▲ Soil Moisture Station
- † Aerial Snow Depth Gage





*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in Deschutes, Jefferson and Crook counties, foreseen one month ago, has been dimmed slightly by clear, cold February weather which brought near record-low precipitation and greatly reduced streamflow. Inflow to the areas' all-important storage reservoirs has continued at a reduced rate.

## SNOW COVER

Water content of the mountain snowpack increased only slightly during the month and are now 87 percent of March 1 on Crooked watersheds and 88 percent on the Deschutes. A year ago the snow cover was less than one-fourth average.

## SOIL MOISTURE

Moisture in watershed soils under the snowpack remains at 70 percent of capacity. Some snowmelt water will be absorbed as runoff begins.

## RESERVOIR STORAGE

Crooked River reservoirs, Ochoco and Prineville, hold 25,280 and 97,279 acre feet respectively as of March first. This totals 122,559 a.f. which is slightly less than the 137,200 acre feet held one year ago, but still very adequate water supplies for lands served by these reservoirs.

Wickiup Reservoir holds 166,250 acre feet compared with 178,400 a.f. last year. This years' figure is well above the average March 1 storage of 133,300 acre feet.

Crane Prairie and Crescent Lake hold 40,300 acre feet and 50,776 acre feet respectively compared with 44,200 and 63,600 acre feet in storage one year ago. These stored supplies are very close to average.

## STREAMFLOW

Forecasts of streamflow have dropped 8 to 15 percent from the estimates of last month but are still in the 80 to 95 percent of average range.

Flow of Crooked River is forecast at 80 percent or 144,000 acre feet March through July. For a similar period, Ochoco Creek is forecast at 82 percent or 37,000 a.f. Some small tributaries in the Crooked River watershed will have slightly reduced late season water supplies.

Squaw and Tumalo Creeks are forecast to flow 95 to 91 percent of average for the April-September period.

Flow of the Deschutes at Benham Falls is forecast at 90 percent or 345,000 acre feet April through July which should supply near average water supplies.

continued on next page



continued from preceding page

Upstream tributaries are forecast as follows for April through September:

Little Deschutes near Lapine	90,000 a.f.	80 percent of average
Crescent Creek at Crescent Lk.	28,000 a.f.	90 percent of average
Odell Creek near Crescent	30,000 a.f.	88 percent of average
Crane Prairie Reservoir Inflow	130,000 a.f.	91 percent of average
Deschutes below Snow Creek	65,000 a.f.	88 percent of average

## WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation District	Average	Average
Bear Creek	Average	Average
Beaver Creek	Average	Average
Camp Creek	Average	Average
Central Ore. Irrig. Dist.	Average	Average
Crooked River	Average	Average
Deschutes River	Average	Average
Hay-Trout Creeks	Average	Average
Lone Pine Irrig. Dist.	Average	Average
Mill Creek	Average	Average
North Unit Irrig. Dist.	Average	Average
Ochoco Creek	Average	Average
Sisters Irrigation Dist.	Average	Average
Snow Creek Irrig. Dist.	Average	Average
Squaw Creek Irrig. Dist.	Average	Average
Swalley Ditch	Excellent	Excellent
Tumalo Project	Average	Average
Walker Basin Irrig. Dist.	Average	Average

## RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Crane Prairie	55.3	40.3	44.2	44.1
Crescent Lake	117.2	50.8	63.6	47.3
Ochoco	47.5	25.3	37.1	28.5
Prineville	153.0	97.3	100.1	-
Wickiup	182.0	166.3	178.4	133.3

Note:  
Current storage figure for Crescent Lake includes 5360 acre feet of known dead and inactive storage.

## STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

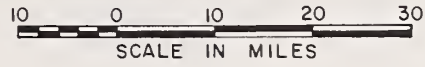
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
0535	Crane Prairie Reservoir total Inflow	130	April-Sept.	143	91
0600	Crescent at Crescent Lake <sup>d</sup>	25	March-July	28	89
		28	April-Sept.	31	90
0795	Crooked near Post	144	March-July	179	80
		147	March-Sept.	181	81
0645	Deschutes at Benham Falls <sup>d</sup>	500	April-Sept.	602	83
		345	April-July	404	85
0500	Deschutes below Snow Creek	65	April-Sept.	74	88
0630	Deschutes, Little near Lapine <sup>d</sup>	92	March-July	115	80
		90	April-Sept.	113	80
0848	Ochoco Reservoir net Inflow	37	March-July	45	82
		26	April-Sept.	32	81
0555	Odell near Crescent	30	April-Sept.	34	88
0750	Squaw near Sisters	52	April-Sept.	55	95
0730	Tumalo near Bend <sup>d</sup>	50	April-Sept.	55	91

## SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Derr	5670	24	9.0	b			
Marks Creek	4540	36	14.1	2-26-64	9.2	11.9	11.8
Snow Mountain	6300	48	16.7	2-25-64	12.3	14.8	14.8

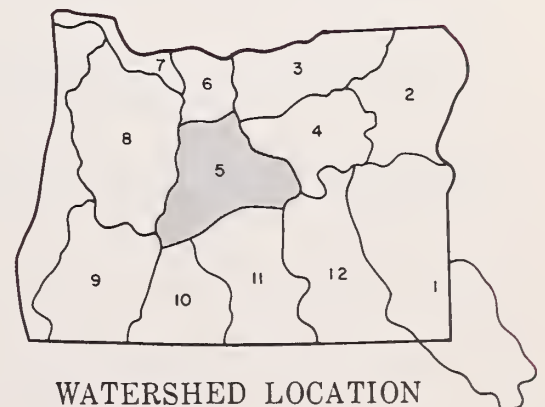
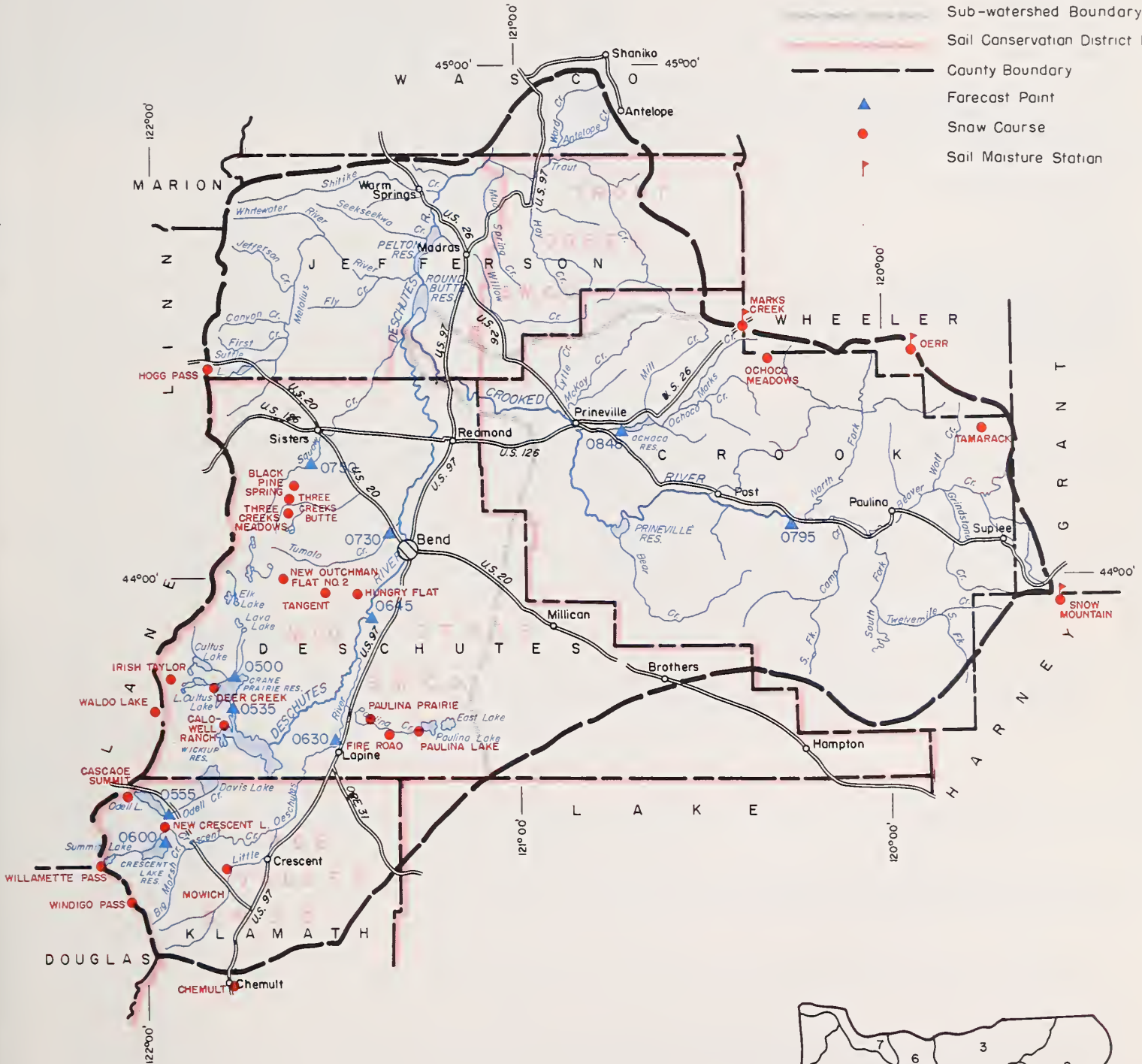
(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# UPPER DESCHUTES, CROOKED WATERSHEDS



## LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- Soil Conservation District Bdry
- - - County Boundary
- ▲ Forecast Point
- Snow Course
- ▼ Soil Moisture Station





# Upper Deschutes, Crooked Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Black Pine Spring	4600	2/28	10	3.4	0.0	5.8
Caldwell Ranch	4400	2/19	30	10.5	0.0	- -
Cascade Summit	4880	2/27	71	28.6	4.9	30.6 <sup>h</sup>
Chemult	4760	2/24	31	9.0	0.0	12.2
Derr	5670	2/28	31	9.4	0.5	- -
Fire Road	5050	2/18	21	6.6	0.0	- -
Hogg Pass	4755	2/27	96	35.0	7.5	42.0
Hungry Flat	4400	2/27	16	6.4	0.0	8.1
Irish-Taylor	5500	2/19	101	34.6	11.7	- -
Marks Creek	4540	2/26	16	4.8	0.0	4.1
Mowich	4700	2/25	12	4.2	0.0	- -
New Crescent Lake	4800	2/26	44	14.8	0.0	16.8 <sup>h</sup>
New Dutchman Flat #2	6400	2/27	108	43.9	20.2	48.3 <sup>h</sup>
Ochoco Meadows	5200	2/27	29	8.1	0.0	10.3
Paulina Lake	6330	2/18	50	16.5	8.5	- -
Paulina Prairie	4285	2/18	10	3.6	0.0	- -
Snow Mountain	6300	2/25	36	10.5	5.5	13.0 <sup>h</sup>
Tamarack	4800	2/26	20	5.7	0.0	6.2 <sup>h</sup>
Tangent	5400	2/27	56	19.2	5.0	22.2 <sup>h</sup>
Three Creeks Butte	5200	2/28	26	9.6	0.0	- -
Three Creeks Meadows	5600	2/28	49	17.6	T	20.0 <sup>h</sup>
Waldo Lake	5500	2/20	85	27.1	5.5	- -
Willamette Pass	5600	2/25	102	36.7	13.2	38.3 <sup>h</sup>
Windigo Pass	5800	2/26	100	36.9	15.4	40.0 <sup>h</sup>

*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

OREGON

*as of*

MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in the Hood River and Wasco county areas, foreseen one month ago, has been "dimmed" slightly by clear, cold February weather which brought near record-low precipitation and reduced streamflow.

## SNOW COVER

Sparse snow storms in February increased the snow cover only lightly. Water content of the mountain snowpack is 91 percent of the March first average compared with 9 percent of average one year ago on this date.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is near average and should favor a good runoff from snowmelt water.

## RESERVOIR STORAGE

Clear Lake Reservoir, serving the Juniper Flat Irrigation District, held about 1,500 acre feet of water near the end of February. This is short of the 4,400 acre feet on hand a year ago at this date.

## STREAMFLOW

Forecasts have dropped slightly from the estimates of last month but are still up in the 96 to 98 percent of average range.

Flow of White River near Tygh Valley is forecast at 98 percent average for the April-September period. Flow of Rock, Gate, Three-Mile, Badger and Tygh Creeks is expected to be near average.

The Mile Creeks, Mill and Mosier creeks are expected to produce near average water supplies this spring and summer.

The West Fork of Hood River is forecast to flow 98 percent average in the April-September period. The full river, as measured near Hood River, is forecast to flow 350,000 acre feet April through September or 96 percent of average.

Near average water supplies are forecast for all irrigated lands with the possible exception of lands of the Juniper Flat Irrigation District near Wamic which will likely have some shortages.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch	Average	Average
Badger Creek	Average	Average
Dee Irrigation District	Average	Average
East Fork Irrig. Dist.	Average	Average
Farmers Irrig. Dist.	Average	Average
Hood River Irrig. Dist.	Average	Average
Juniper Flat Irrig. Dist.	Fair	Fair
Middle Fork Irrig. Dist.	Average	Average
Mile Creeks	Average	Average
Mill Creek	Average	Average
Mount Hood Irrig. Dist.	Average	Average
Rock-Gate-Threemile Crs.	Average	Average
Tygh Creek	Average	Average
White River	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	11.8	1.5	4.4	--

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
1210	Hood near Hood River <sup>d</sup>	350	April-Sept.	365	96
		300	April-July	311	96
1185	Hood, West Fork near Dee	170	April-Sept.	174	98
		140	April-July	151	98
1015	White below Tygh Valley	175	April-Sept.	178	98
		157	April-July	161	98

# SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Brooks Meadows	4300	2/27	29	12.0	0.0	--
Clear Lake	3500	2/26	24	8.4	0.0	14.0 <sup>h</sup>
Clear Lake (Experimental)	3500	2/26	40	14.6	0.0	--
Cooper Spur	3490	2/27	25	10.9	0.0	--
Greenpoint Reservoir	3400	2/27	39	14.3	T	16.7 <sup>h</sup>
Knebal Springs	3850	2/27	21	8.7	0.0	--
Lambert Point <sup>e</sup>	7000	b				
Parkdale	1770	2/27	0	0.0	0.0	--
Phlox Point	5600	2/29	143	59.0	10.5	60.3
Red Hill	4400	2/28	93	39.0	0.7	44.2 <sup>h</sup>
Still Creek	3700	2/26	59	24.8	0.0	25.5
Switchback	3255	3/2	46	16.0	2.2	--
Tilly Jane	6000	2/23	89	36.9	6.7	40.3 <sup>h</sup>
Ulrich Ranch Junction	3350	2/27	11	4.8	0.0	--
Umbrella Falls	5400	3/4	171	63.0	21.1	--
Upper Valley	2530	2/27	0	0.0	0.0	--

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

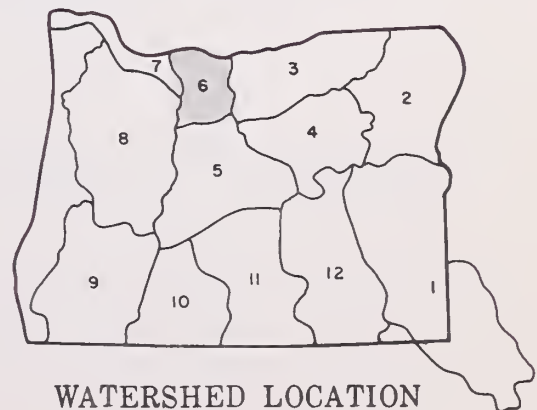
# HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

10 0 10 20  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- ▼ Soil Moisture Station







*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

## GENERAL OUTLOOK

The 1964 streamflow prospects are for near average flow on the main stem of the Columbia River with forecasts in the general range of 80 to 90 percent of average on the Snake River and its tributaries. Flows of about 90 percent of average are most probable for the Clark Fork and the Kootenai. Tributaries to the lower Columbia are expected to have slightly less than average flow in Oregon and just above average in Washington. Water supply outlook is good throughout the basin for both irrigation and power.

## SNOW COVER

After a near maximum of record increase in snowpack during January, February snow accumulation tended to be deficient. Total seasonal snowfall is slightly above average in the Cascade Mountains of Washington and in northern British Columbia, and slightly less than average for tributaries in Oregon, Idaho, Wyoming and Montana. Snowfall has also been slightly less than average on the headwaters of the Kootenai.

## SOIL MOISTURE

Soil moisture now tends to be above average except for the immediate area of the Continental Divide where soils are dry.

## STREAMFLOW

Streamflow over the upper basin has been especially deficient on Snake River tributaries. Above normal flows have been experienced on the Okanogan watershed.

The flow of the Columbia at The Dalles\*, Oregon has been less than average since October 1. The record by months is as follows:

<u>Month</u>	<u>Percent of Average Discharge (1943-57)</u>		
October	87	Adjusted for storage	
November	85	"	"
December	74	"	"
January	79	"	"
February	66	"	"

\* From preliminary data furnished by Current Records Center, U. S. Geological Survey, Portland, Oregon.



# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
1057	Columbia at The Dalles	99,140 67,000	April-Sept. April-June	106,100 72,000	93 93

## HISTORICAL DATA (Columbia River at The Dalles)

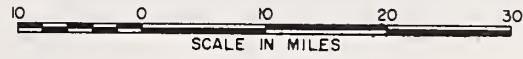
YEAR	STREAMFLOW <sup>d</sup> (1,000 A.F.)			PEAK (1,000 c.f.s)	DATE
	APR. - SEPT.	APR. - JUNE	MAY - JUNE		
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23
1960	97,000	64,000	48,000	442	June 6
1961	101,400	74,400	64,000	699	June 8
1962	94,600	64,100	49,200	460	June 5

## LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)

VANCOUVER GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j.) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# LOWER COLUMBIA WATERSHEDS



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- River Miles
- Snow Course





*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

The "near average" outlook for the Willamette Valley of one ago has been dimmed slightly. Clear, cool, February weather brought little precipitation and greatly reduced streamflow to the basin.

## SNOW COVER

Water content of the snowpack increased at a lower than average February rate but is still 93 percent of the March 1 average. Last year at this time it was only 10 percent of average.

## SOIL MOISTURE

Watershed soils are well primed and are expected to absorb little snowmelt water from spring runoff.

## RESERVOIR STORAGE

Willamette Valley reservoirs are below last years' storage on March 1, but are expected to fill according to a pre-determined flood control plan designated by the Corps of Engineers as spring runoff progresses.

## STREAMFLOW

Forecasts of streamflow in the Willamette Basin dropped 2 to 9 percent as a result of below average precipitation over most of the watershed during February.

Streamflow forecasts vary from 88 percent on the North Fork Santiam to 96 percent on the Row and Middle Fork Willamette for the April-September period. The flow of the Middle Fork Willamette\* was 68 percent of average last month.

The Clackamas is expected to flow 97 percent of average at Estacada. The McKenzie is forecast at 91 percent of average for the April-September period.

The Willamette at Salem is expected to flow 4,855,000 acre feet or 89 percent of average for the same April-September period.

\* Preliminary data furnished by U. S. Geological Survey, Portland, Oregon.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya	Average	Average
Clackamas	Average	Average
McKenzie	Average	Average
Molalla	Average	Average
Santiam, North	Average	Average
Santiam, South	Average	Average
Willamette, Coast Fork	Average	Average
Willamette, Middle Fork	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottage Grove	30.8*	7.7	10.0	9.7
Cougar	219.3*	28.6	- -	- -
Detroit	299.9*	62.2	164.0	79.3
Dorena	70.5*	16.9	24.1	23.0
Fern Ridge	94.2*	15.0	32.4	35.1
Hills Creek	249.0*	62.1	105.8	- -
Lookout Point	337.2*	65.5	178.9	- -
Timothy Lake	61.6	45.4	61.0	- -

\*Multiple purpose reservoir--space reserved primarily for flood runoff.

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
2080	Clackamas at Big Bottom	165	April-Sept.	184	90
		135	April-July	150	90
2100	Clackamas at Estacada	850	April-Sept.	879	97
		750	April-July	763	98
2095	Clackamas above Three Lynx	640	April-Sept.	674	95
		550	April-July	578	95
1590	McKenzie at McKenzie Bridge	585	April-Sept.	640	91
		445	April-July	488	91
1625	McKenzie near Vida	1235	April-Sept.	1362	91
		1010	April-July	1120	90
2090	Oak Grove Fork above Power Intake	185	April-Sept.	198	93
		145	April-July	156	93
1545	Row near Dorena	110	April-Sept.	114	96
		105	April-July	109	96
1830	Santiam, North at Mehama <sup>d</sup>	850	April-Sept.	968	88
		760	April-July	866	88
1875	Santiam, South at Waterloo	585	April-Sept.	652	90
		555	April-July	616	90
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	870	April-Sept.	909	96
		780	April-July	804	97
1910	Willamette at Salem <sup>d</sup>	4855	April-Sept.	5461	89
		4325	April-July	4942	88

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# WILLAMETTE WATERSHEDS

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION



# Willamette Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Big Bottom	2118	2/28	13	4.7	0.0	8.9 <sup>h</sup>
Cascade Summit	4880	2/27	71	28.6	4.9	30.6 <sup>h</sup>
Champion	4500	2/28	73	28.5	0.0	24.7
Clackamas Lake	3400	2/26	40	17.0	0.0	14.4 <sup>h</sup>
Clear Lake	3500	2/26	24	8.4	0.0	14.0 <sup>h</sup>
Clear Lake (Experimental)	3500	2/26	40	14.6	0.0	- -
Dead Horse Grade	3800	2/27	54	18.3	0.0	21.7 <sup>h</sup>
Detroit Town	1610	2/27	0	0.0	0.0	1.8 <sup>h</sup>
Detroit Dam	1580	2/27	0	0.0	0.0	0.8 <sup>h</sup>
Golden Curry Creek	3136	2/28	30	11.8	0.0	6.6 <sup>h</sup>
Hogg Pass	4755	2/27	96	35.0	7.5	42.0
Lake Harriet	2045	2/28	6	2.6	0.0	3.8 <sup>h</sup>
Layng Creek	1200	2/28	0	0.0	0.0	0.0 <sup>h</sup>
Lost Creek Ranch	1956	2/27	22	9.0	0.0	- -
Lund Park	1740	2/28	0	0.0	0.0	1.3 <sup>h</sup>
Marion Forks	2730	Plowed out			0.0	15.9
Marys Peak	3620	2/29	31	10.8	0.0	- -
McCredie Springs	2120	2/27	0	0.0	0.0	0.9 <sup>h</sup>
McKenzie	4800	2/27	102	39.4	8.0	43.3 <sup>h</sup>
McKenzie Bridge	1372	2/27	0	0.0	0.0	1.6 <sup>h</sup>
Meridian Dam	750	2/27	0	0.0	0.0	0.0 <sup>h</sup>
Mill City	826	2/27	0	0.0	0.0	0.0 <sup>h</sup>
Oakridge	1310	2/27	0	0.0	0.0	T <sup>h</sup>
Peavine Ridge	3500	2/28	54	19.1	- -	18.8
Phlox Point	5600	2/29	143	59.0	10.5	60.3
Railroad Overpass	2750	2/27	17	7.0	0.0	4.6 <sup>h</sup>
Salt Creek Falls	4000	2/27	46	15.5	0.0	17.0 <sup>h</sup>
Santiam Junction	3990	2/27	64	25.0	0.0	25.3
Still Creek	3700	2/26	59	24.8	0.0	25.5
Timothy Lake	3295	2/26	42	15.0	0.2	- -
Vida	800	2/27	0	0.0	0.0	0.0 <sup>h</sup>
Waldo Lake	5500	2/20	85	27.1	5.5	- -
Weaver Creek	2440	2/28	0	0.0	0.0	2.7 <sup>h</sup>
White Branch Slide	2800	2/27	30	10.2	0.0	8.8 <sup>h</sup>
Whitewater Bridge	2175	2/27	14	5.3	0.0	7.9 <sup>h</sup>
Willamette Pass	5600	2/25	102	36.7	13.2	38.3 <sup>h</sup>

*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK ROGUE, UMPQUA, WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in the Rogue-Umpqua area, foreseen one month ago, has been "dimmed" slightly by clear, cool February weather which brought near record-low precipitation and reduced streamflow.

## SNOW COVER

Water content of the mountain snowpack increased sparingly in February and is now 94 percent of the March first average. A year ago the snow was only 19 percent of the average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is near average and will absorb relatively little of the runoff produced by springtime snowmelt.

## RESERVOIR STORAGE

Water stored for the Medford and Rogue River Valley Irrigation Districts in Fourmile and Fish Lakes now totals 17,300 acre feet compared with 13,200 a.f. one year ago. This is better than the average storage of 14,000 on March first. Water supplies should be adequate for this irrigation season.

The Talent Irrigation District has a total of 84,200 acre feet of stored water compared with 92,300 acre feet a year ago -- an adequate supply for 1964 irrigation.

## STREAMFLOW

Forecasts of local streamflow have dropped from 11 to 15 percent from the estimates of last month, but are still up in the 85 to 100 percent average range.

Flow of the North Umpqua below Lemolo Reservoir is forecast at 91 percent average for the period April through September. The Clearwater is estimated at 91 percent for this period.

Flow of Rogue River at Raygold is forecast at 87 percent average April through September and the Rogue above Prospect is estimated at 90 percent. Water users of the Grants Pass Irrigation District should be able to complete their irrigation season without canal alternation this year.

The Applegate and Illinois Rivers are forecast at 85 and 98 percent average for the April-September period.

Report prepared by  
W. T. FROST AND ROBERT L. WHALEY  
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE  
209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek	Average	Average
Applegate River, Big	Average	Average
Applegate River, Little	Average	Average
Ashland Creek	Average	Average
Butte Creek, Little	Average	Average
Butte Creek, Big	Average	Average
Cow Creek	Average	Average
Deer Creek	Average	Average
Elk Creek	Average	Average
Emigrant Creek (abv. Res.)	Average	Average
Evans Creek	Average	Average
Gold Hill Irrigation Dist.	Average	Average
Grants Pass Irrig. Dist.	Average	Average
Grave Creek	Average	Average
Illinois River, East Fork	Average	Average
Illinois River, West Fork	Average	Average
Jump-off-Joe Creek	Average	Average
Neil Creek	Average	Average
Red Blanket Creek	Average	Average
Rogue River	Average	Average
Sucker Creek	Average	Average
Table Rock Irrig. Dist.	Average	Average
Thompson Creek	Average	Average
Wagner Creek	Average	Average
Williams Creek	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

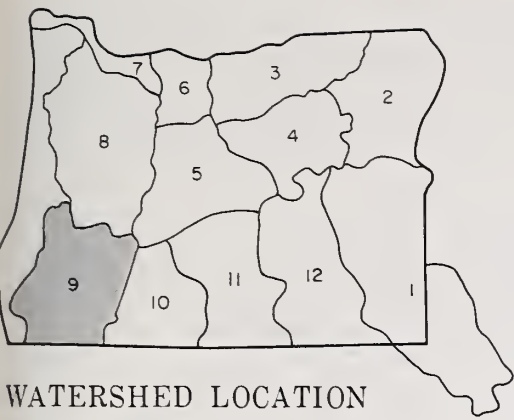
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Emigrant Gap	39.0	28.0	34.3	6.1
Fish Lake	7.8	4.7	5.0	5.3
Fourmile Lake	16.1	12.6	8.2	8.7
Howard Prairie	60.0	44.6	44.2	- -
Hyatt Prairie	16.1	11.6	13.8	7.0

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of March 1, 1964

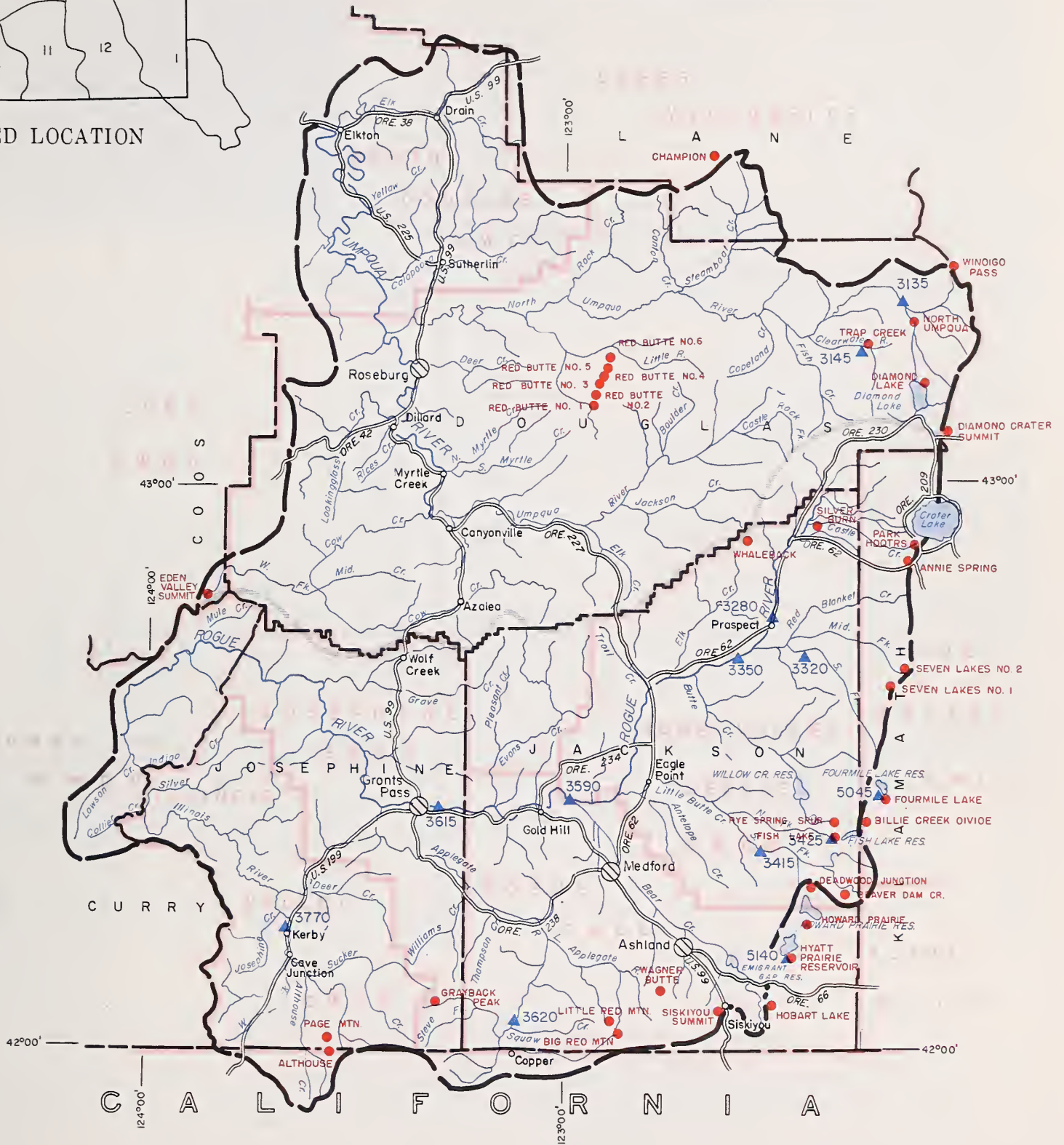
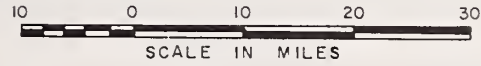
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
3620	Applegate near Copper	110	April-Sept.	131	85
3145	Clearwater above Trap Creek <sup>d</sup>	66	April-Sept.	73	90
5045	Fourmile Lake net Inflow <sup>d</sup>	7.1	March-Sept.	7.6	93
5140	Hyatt Reservoir net Inflow <sup>d</sup>	5.6	April-Sept.	6.2	90
3770	Illinois River at Kerby	315	March-July	314	100
		192	April-Sept.	196	98
3425	Little Butte, N. Fk. at Fish Lake nr. Lake Cr. <sup>d</sup>	15.0	April-Sept.	16.9	89
3415	Little Butte, So. Fk. nr. Lake Creek	40	April-July	42	95
	Note: Minimum flow will drop to 100 c.f.s. by June 7.				
3280	Rogue above Prospect	315	April-Sept.	351	90
		265	April-July	293	90
3320	Rogue, South Fork near Prospect <sup>d</sup>	76	April-Sept.	83	91
		65	April-July	71	92
3350	Rogue below South Fork	675	April-Sept.	749	90
		550	April-July	608	90
3590	Rogue at Raygold near Central Point	875	April-Sept.	1004	87
		740	April-July	842	88
3615	Rogue at Grants Pass	850	April-Sept.	974	87
3135	Umpqua, No. blw. Lemolo Res. nr. Toketee Falls <sup>d</sup>	170	April-Sept.	186	91

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# ROGUE, UMPQUA WATERSHEDS



WATERSHED LOCATION



## LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- - - Soil Conservation District Bdry
- - - County Boundary
- ▲ Forecast Point
- Snow Course



# Rogue, Umpqua Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Althouse	4530	2/27	14	6.3	0.0	5.8
Annie Spring	6018	2/29	90	35.1	12.8	41.0
Beaver Dam Creek	5100	2/27	39	13.3	0.0	- -
Big Red Mountain	6500	2/26	50	17.2	6.6	24.4 <sup>h</sup>
Billie Creek Divide	5300	2/27	62	21.5	T	23.6
Champion	4500	2/28	73	28.5	0.0	24.7
Cold Springs Camp	6100	2/28	82	28.3	9.2	- -
Deadwood Junction	4600	2/27	40	13.6	0.0	- -
Diamond-Crater Summit	5800	2/20	89	29.5	10.8	- -
Diamond Lake	5315	2/20	61	18.8	1.2	23.0
Eden Valley Summit	2390	3/3	23	8.4	0.0	- -
Fish Lake	4865	2/27	48	17.6	0.0	12.0
Fourmile Lake	6000	2/27	50	19.2	20.4	26.0 <sup>h</sup>
Grayback Peak	6000	2/27	62	25.7	0.0	23.4
Hobart Lake	5010	b				
Howard Prairie	4500	2/27	31	10.5	0.0	- -
Hyatt Prairie Reservoir	4900	2/27	28	9.2	0.0	9.5 <sup>h</sup>
King Mountain #1	4800	b				
Little Red Mountain	6500	2/25	44	15.8	1.4	19.1 <sup>h</sup>
North Umpqua near Lake Creek	4215	2/27	46	17.8	T	14.0 <sup>h</sup>
Page Mountain	4045	2/27	6	2.4	0.0	- -
Park Headquarters	6450	2/29	118	48.0	23.2	51.7 <sup>h</sup>
Red Butte #1	4560	b				
Red Butte #2	4000	2/28	40	15.3	0.0	- -
Red Butte #3	3500	2/28	31	11.8	0.0	- -
Red Butte #4	3000	2/28	16	6.0	0.0	- -
Red Butte #5	2500	2/28	0	0.0	0.0	- -
Red Butte #6	2000	2/28	0	0.0	0.0	- -
Rye Spring Spur	5000	2/27	42	15.9	0.0	- -
Seven Lakes #1	6800	2/25	122	46.2	18.8	51.0 <sup>h</sup>
Seven Lakes #2	6200	2/24	94	33.2	6.7	37.3
Silver Burn	3720	2/26	40	14.5	0.0	13.3
Siskiyou Summit (Alternate)	4630	2/28	22	7.4	0.0	7.1 <sup>h</sup>
South Fork Canal	3500	2/27	11	4.5	0.0	3.4
Trap Creek	3800	2/27	41	16.0	0.0	- -
Wagner Butte	6900	b				
Whaleback	5140	2/28	81	29.0	1.2	33.1 <sup>h</sup>
Windigo Pass	5800	2/26	100	36.9	15.4	40.0 <sup>h</sup>

*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

*as of*

MARCH 1, 1964




---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

The satisfactory outlook for 1964 irrigation water supplies in Klamath Basin, foreseen one month ago, has been "dimmed" slightly by clear, cool February weather which brought near record-low precipitation and reduced streamflow.

## SNOW COVER

Water content of the mountain snowpack increased only slightly and is now 97 percent of the March first average. A year ago it was only 23 percent of average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is 74 percent of capacity and is favorable to a good runoff from snowmelt this spring.

## RESERVOIR STORAGE

Gerber Reservoir contains 36,980 acre feet of water compared with 42,100 a.f. one year ago. Clear Lake Reservoir now holds 94,890 acre feet compared with 132,500 acre feet last year. Inflow to these two reservoirs has been nearly zero in the past month.\* However, there are 5.5 inches of water remaining in the snowpack at Gerber Dam with a runoff potential sufficient to adequately increase the storage in these two important reservoirs.

Upper Klamath Lake now holds 315,100 acre feet compared with 493,600 a. f. one year ago. Coupled with expected inflow this reservoir will also produce satisfactory water supplies this summer season.

## STREAMFLOW

Flow into Gerber and Clear Lake reservoirs is forecast at 42,000 and 85,000 a.f. or 95 and 98 percent of average for the March through June period.

Flow of Sprague River near Chiloquin is forecast at 275,000 acre feet or 91 percent average for the March-June period. Williamson River below Sprague River is forecast 430,000 acre feet or 88 percent for the same period.

Inflow to Upper Klamath Lake is forecast at 600,000 acre feet or 92 percent for the period March through June. The inflow to the lake during the month of February was 113,062 acre feet or 79 percent of the 1943-57 average\*\*.

\* Preliminary data from the U. S. Bureau of Reclamation, Klamath Falls, Oregon

\*\* Preliminary data from Pacific Power & Light Co., Medford, Oregon



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley	Average	Average
Lost River (Clear Lake)	Average	Average
Lost River (Gerber)	Average	Average
Lost River (Willow Res.)	Average	Average
Sprague River	Average	Average
Upper Klamath Lake	Average	Average
Williamson River	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	440.2	94.9	132.5	224.0
Gerber	94.0	37.0	42.1	38.3
Upper Klamath Lake	584.0	315.1	498.6	390.0

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

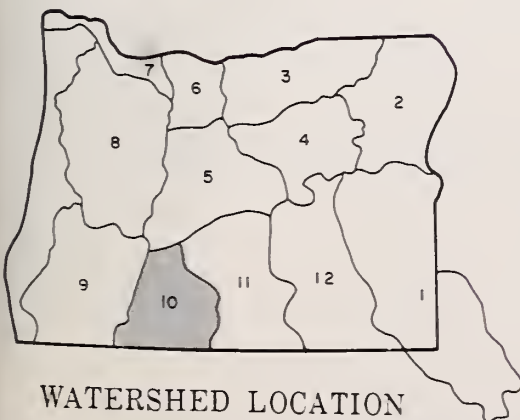
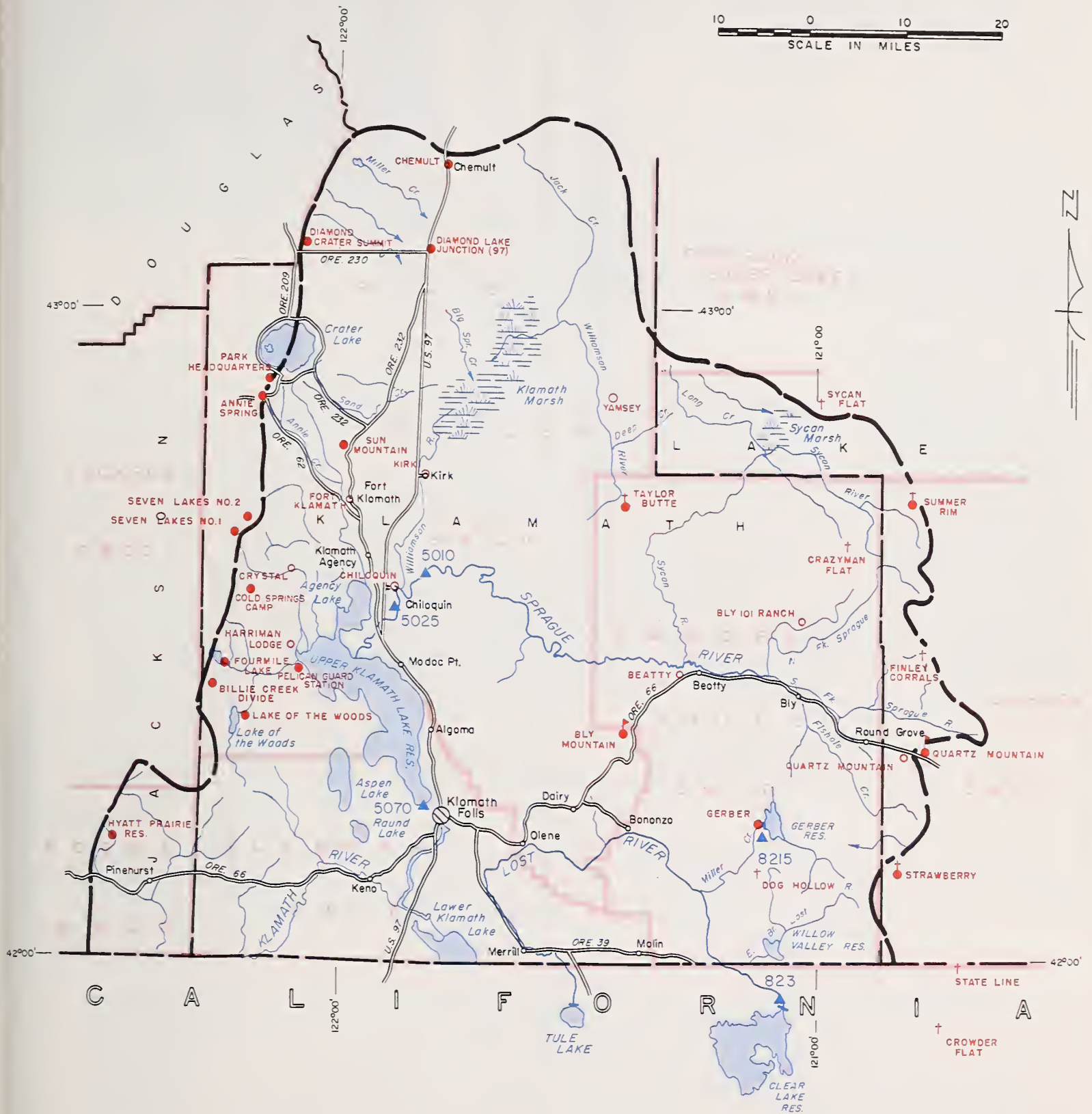
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
923	Clear Lake Reservoir Inflow <sup>k</sup>	85	March-June	87	98
		48	April-Sept.	50	96
8215	Gerber Reservoir Inflow <sup>k</sup>	42	March-June	44	95
		24	April-Sept.	25	96
5010	Sprague near Chiloquin	275	March-June	303	91
		260	April-Sept.	296	88
5070	Upper Klamath Lake net Inflow <sup>k</sup>	600	March-June	655	92
		580	April-Sept.	632	92
5025	Williamson below Sprague River	430	March-June	473	88
		415	April-Sept.	486	88

# SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Bly Mountain	5090	42	14.0	2-27-64	10.4	12.9	10.4

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# KLAMATH WATERSHEDS




## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- ▶ Soil Moisture Station



## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Annie Spring	6018	2/29	90	35.1	12.8	41.0
Beatty (PP&L)	4300	2/26	3	0.9	0.0	0.2
Billie Creek Divide	5300	2/27	62	21.5	T	23.6
Bly Mountain	5090	2/27	25	8.2	0.0	- -
Bly 101 Ranch (PP&L)	4800	2/28	13	4.4	0.0	1.0
Chemult	4760	2/24	31	9.0	0.0	12.2
Chiloquin (PP&L)	4187	b				
Cold Springs Camp	6100	2/28	82	28.3	9.2	- -
Crazyman Flat <sup>e</sup>	6100	2/25	28	8.4	0.0	- -
Crowder Flat <sup>e</sup> (Calif.)	5200	2/25	15	4.5	0.0	3.9 <sup>h</sup>
Crystal (PP&L)	4200	2/27	27	7.3	0.0	9.3
Diamond-Crater Summit	5800	2/20	89	29.5	10.8	- -
Diamond Lake Junction (97)	4600	2/20	21	7.0	0.0	- -
Dog Hollow <sup>e</sup>	4900	2/25	8	2.4	0.0	- -
Finley Corrals <sup>e</sup>	6000	2/25	51	15.3	0.8	- -
Fort Klamath (PP&L)	4150	2/28	19	6.2	0.0	3.4
Gerber	4850	2/28	18	5.5	0.0	2.6 <sup>h</sup>
Harriman (Tomahawk)	4200	2/28	28	12.8	0.0	4.4 <sup>h</sup>
Hyatt Prairie Reservoir	4900	2/27	28	9.2	0.0	9.5 <sup>h</sup>
Kirk (PP&L)	4533	2/29	23	7.9	0.0	6.0
Lake of the Woods	4960	2/26	40	13.8	0.0	11.2
Park Headquarters	6450	2/29	118	48.0	23.2	51.7 <sup>h</sup>
Pelican Guard Station	4150	2/27	19	5.1	0.0	- -
Quartz Mountain	5320	2/27	23	6.8	0.0	6.3 <sup>h</sup>
Quartz Mountain (PP&L)	5504	2/27	24	6.9	0.0	6.4 <sup>h</sup>
Seven Lakes #1	6800	2/25	122	46.2	18.8	51.0
Seven Lakes #2	6200	2/24	94	33.2	6.7	37.3
State Line <sup>e</sup> (Calif.)	5750	2/25	34	10.2	0.0	- -
Strawberry	5600	2/26	25	7.8	0.0	8.2 <sup>h</sup>
Summer Rim	7200	2/27	37	12.3	4.6	14.7 <sup>h</sup>
Sun Mountain	5350	2/19	67	21.5	4.3	25.5
Sycan Falt <sup>e</sup>	5500	2/25	21	6.3	0.0	- -
Taylor Butte	5100	2/26	16	5.5	0.0	- -
Yamsey (PP&L)	4600	b				



# WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

*as of*  
MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

Near average water supplies are still in prospect for Lake County although a clear, cold, February and near record-low precipitation has slightly dimmed the water supply outlook of one month ago.

The snowpack did not receive the usual increases during February and streamflow was reduced to a trickle by cold temperatures.

## SNOW COVER

Water content of the Lake County snowpack is now 92 percent of the March 1 average. On February 1 it was 117 percent of average.

Although the increase to the snowpack during February was well below average, most of the major watersheds have held the snow they received in January as a result of the freezing weather during the month.

## SOIL MOISTURE

Soil moisture, as measured at Camas Creek, although not as good as last year, is now 88 percent of capacity and will favor runoff from spring snowmelt.

## RESERVOIR STORAGE

Inflow to reservoirs in Lake County has been very low during February as a result of low temperatures and a lack of precipitation. Drews Reservoir now holds 38,900 acre feet; last year it held 42,300 acre feet at this time. Cottonwood has 1,100 acre feet and last year it held 5,100 a.f. on March 1.

## STREAMFLOW

Drews Reservoir inflow during the March-July period is forecast at 45,000 acre feet or 96 percent of the 1943-57 average. Together with stored water, this will be an adequate supply for Lakeview Water Users, Incorporated.

The Chewaucan is expected to flow 87,000 acre feet or 95 percent of average for the March-June period. Warner Valley streams are forecast as follows for the March-June period:

Twentymile Creek	30,000 a.f. or 107 percent
Deep Creek	80,000 a.f. or 96 percent
Honey Creek	20,000 a.f. or 104 percent

Average water supplies are foreseen for all irrigated acres in the Lake County and the potential is on the watershed if a rapid melt occurs.



# WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River	Average	Average
Crooked Creek	Average	Average
Deep Creek	Average	Average
Dry Creek	Average	Average
East Side Goose Lake	Average	Average
Guano Lake	Average	Average
Honey Creek	Average	Average
Lakeview Water Users Assn.	Average	Average
Rock Creek (Hart Mtn.)	Average	Average
Silver-Buck Creeks	Average	Average
Summer Lake	Average	Average
Thomas Creek	Average	Average
Twentymile Creek	Average	Average
Warner Lakes	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottonwood	8.7	1.1	5.1	0.7
Drew	63.0	38.9	42.3	40.7

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
3840	Chewaucan near Paisley	87	March-June	92	95
3715	Deep above Adel	80	March-June	83	96
3385	Drew Reservoir net Inflow	45	March-July	47	96
3785	Honey near Plush	20	March-June	19.2	104
3660	Twentymile near Adel	30	March-June	28	107

# SOIL MOISTURE

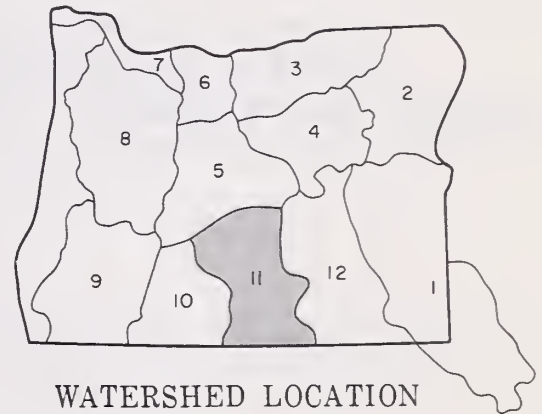
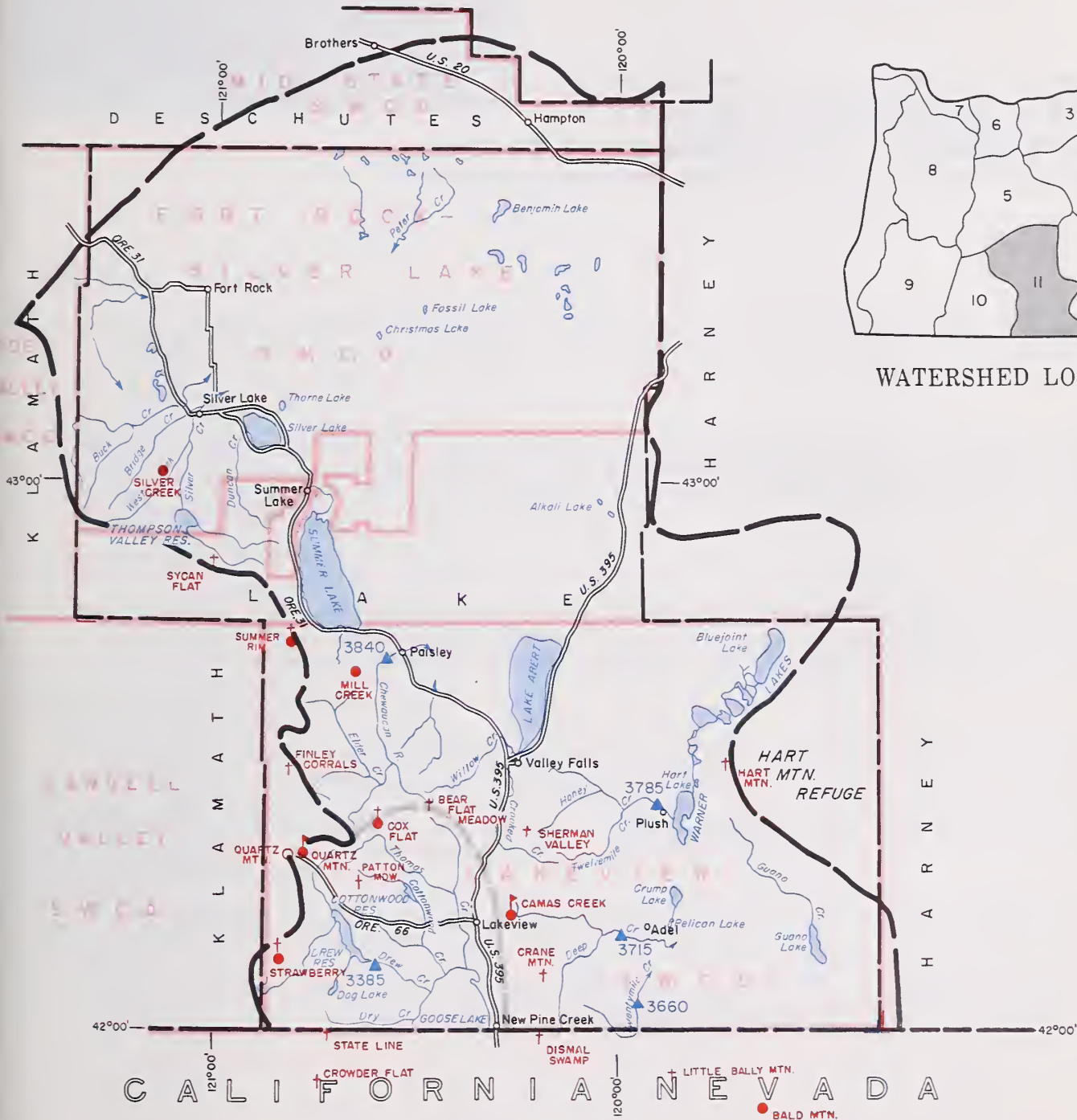
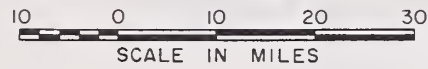
STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Camas Creek	5720	42	14.5	2-28-64	12.7	13.0	10.6 <sup>f</sup>
Quartz Mountain	5320	48	15.3	2-27-64	8.4	10.9	8.3

# SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Bald Mountain (Nev.)	6720	2/27	9	2.3	0.0	3.3
Bear Flat Meadow <sup>e</sup>	5900	2/25	20	6.0	0.0	- -
Camas Creek	5720	2/28	32	10.8	0.0	11.0 <sup>h</sup>
Cox Flat <sup>e</sup>	5750	2/24	28	8.4	0.0	- -
Crane Mountain <sup>e</sup>	6020	2/24	11	3.3	0.0	- -
Crowder Flat (Calif.) <sup>e</sup>	5200	2/25	15	4.5	0.0	3.9 <sup>h</sup>
Dismal Swamp (Calif.) <sup>e</sup>	7000	2/24	42	9.0	2.4	- -
Finley Corrals <sup>e</sup>	6000	2/25	51	15.3	0.8	- -
Hart Mountain <sup>e</sup>	6350	2/24	5	1.5	0.0	- -
Little Bally Mountain (Nev.) <sup>e</sup>	6600	2/24	6	1.8	0.0	- -
Mill Creek	6200	2/28	20	6.3	0.4	8.1
Patton Meadows <sup>e</sup>	6800	2/24	40	12.0	2.4	- -
Quartz Mountain (PP&L)	5504	2/27	24	6.9	0.0	6.4 <sup>h</sup>
Quartz Mountain	5320	2/27	23	6.8	0.0	6.3
Sherman Valley <sup>e</sup>	6600	2/24	35	10.5	1.6	- -
Silver Creek	4900	2/28	8	2.4	0.0	3.7
State Line (Calif.) <sup>e</sup>	5750	2/25	34	10.2	0.0	- -
Strawberry	5600	2/26	25	7.8	0.0	8.2 <sup>h</sup>
Summer Rim	7200	2/27	37	12.3	4.6	14.7 <sup>h</sup>
Sycan Flat <sup>e</sup>	5500	2/25	21	6.3	0.0	- -

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# LAKE COUNTY, GOOSE LAKE WATERSHEDS



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- ⚑ Soil Moisture Station





# WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS

OREGON

*as of*

MARCH 1, 1964

---

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

---

## GENERAL OUTLOOK

Harney Basins' satisfactory water supply outlook for 1964 has been "dimmed" slightly by clear, cool, February weather which brought near record-low precipitation.

## SNOW COVER

Water content of the mountain snowpack increased sparingly during the dry, cool weather of the past month and is now 85 percent of average in North Harney and 90 percent average in South Harney. One year ago the snowpack was only 19 percent of average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack is now 84 percent of capacity in North Harney but only 61 percent in South Harney. A greater percentage of snow-melt runoff will be absorbed in the southern part of the basin than in the northern.

## STREAMFLOW

Streamflow forecasts in Harney Basin have dropped off from 15 to 23 percent from last months' estimates but are still up in the 80 to 97 percent of average range.

Flow of the Silvies River is forecast at 91,000 acre feet or 85 percent average for the April through September period. Silver Creek is expected to flow 96 percent in the April-July period.

The Blitzen River is forecast at 65,000 acre feet or 97 percent April through September and Trout Creek should flow 80 percent average for that period.

Smaller streams of the county are expected to have flows slightly below average this year but the spring snowmelt peak should be very close to average.



# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley	Average	Average
Cow Creek	Average	Average
Donner und Blitzen River	Average	Average
Mill-Coffeepot Creeks	Average	Average
Rattlesnake Creek	Average	Average
Silver Creek	Average	Average
Silvies River	Average	Average
Soldier-Prather Creek	Average	Average
Trout Creek	Average	Average
Whitehorse Creek	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) March 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of March 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT. OF AVERAGE <sup>i</sup>
NO.	NAME				
3960	Donner und Blitzen near Frenchglen	60	March-June	63	95
		65	April-Sept.	67	97
4030	Silver near Riley	25	April-July	26	96
3935	Silvies near Burns	105	March-June	124	85
		91	April-Sept.	107	85
4065	Trout near Denio	7.6	March-July	9.5	80
		7.4	April-Sept.	9.2	80

# SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Springs	5900	42	16.9	2-27-64	7.4	13.5	7.9
Fish Creek	7600	48	15.0	2-26-64	9.0	11.8	8.7
Folly Farm	4450	36	12.5	12-19-63	8.3 <sup>f</sup>	9.0 <sup>f</sup>	10.0
Silvies	6900	48	16.4	2-26-64	10.1	13.6	12.4
Snow Mountain	6300	48	16.7	2-25-64	12.3	14.8	14.8
Starr Ridge	5150	36	10.6	2-27-64	8.3	10.5	8.8
Stinking Water	4800	48	21.9	12-19-63	20.8 <sup>f</sup>	21.1 <sup>f</sup>	10.2
Willow-Bald	5000	24	6.6	2-25-64	5.3	6.5	- -

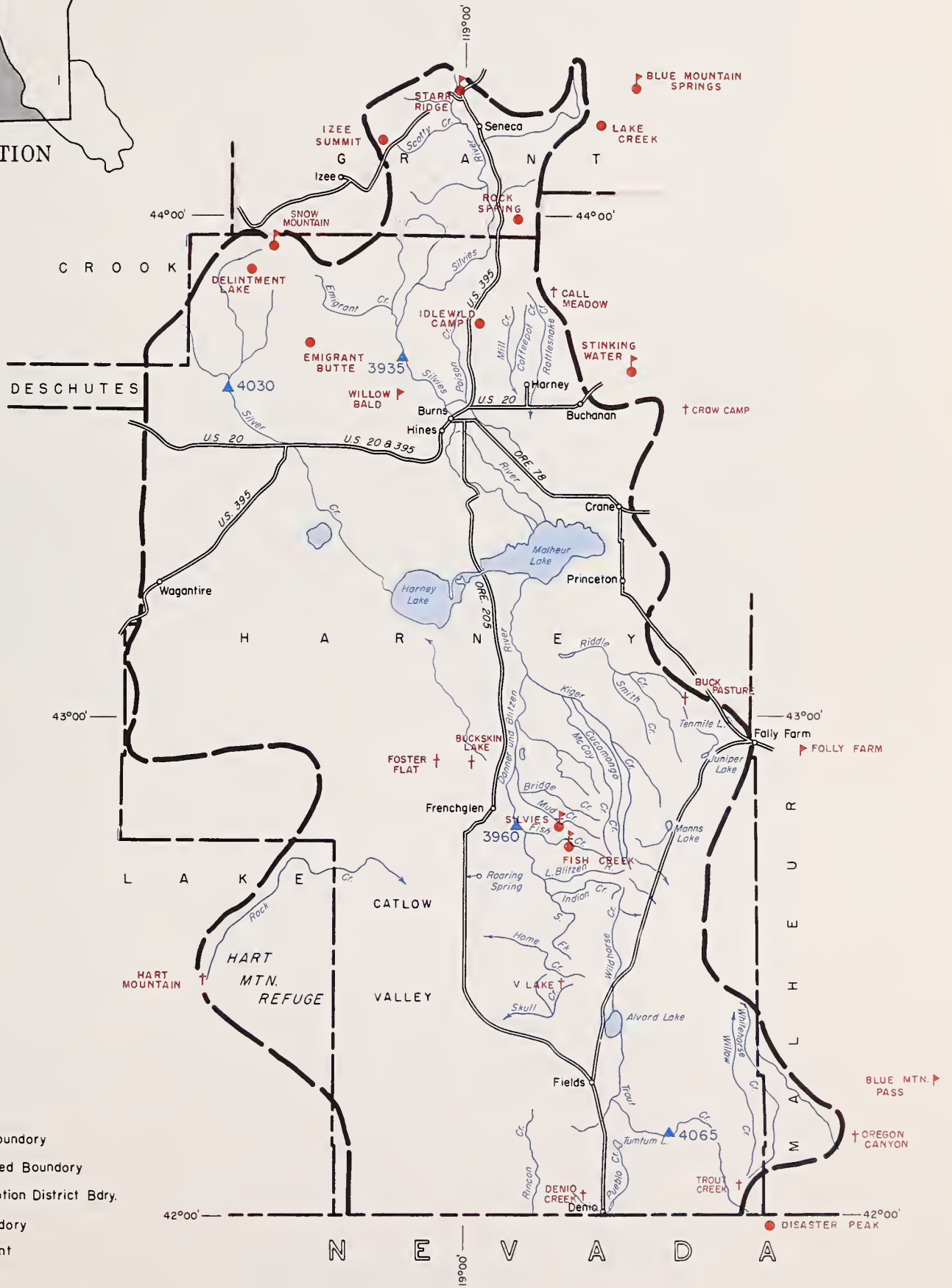
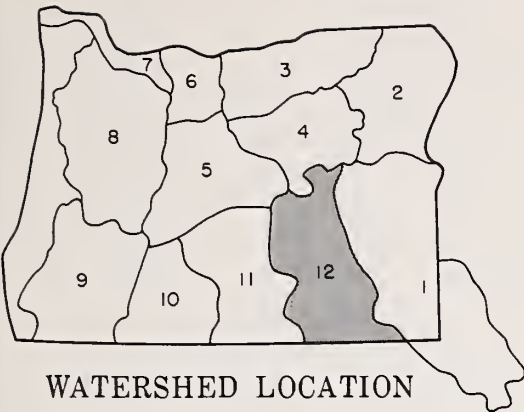
# SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Blue Mountain Springs	5900	2/26	40	12.9	6.9	16.2
Buck Pasture <sup>e</sup>	5700	2/27	18	6.1	0.3	- -
Buckskin Lake <sup>e</sup>	5200	b				
Call Meadows <sup>e</sup>	5340	2/27	12	3.5	0.0	- -
Crow Camp <sup>e</sup>	5500	2/27	10	2.9	0.3	- -
Delintment Lake	5600	2/25	24	6.6	1.3	- -
Denio Creek <sup>e</sup>	6000	2/27	2	0.6	0.0	- -
Disaster Peak (Nev.)	6500	3/2	38	13.1	0.0	14.5
Emigrant Butte	5000	2/25	16	4.7	0.0	- -
Fish Creek	7900	2/26	65	21.5	14.3	- -
Foster Flat <sup>e</sup>	5020	2/27	3	1.0	0.0	- -
Hart Mountain <sup>e</sup>	6350	2/24	5	1.5	0.0	- -
Idlewild Camp	5200	2/27	18	4.8	T	5.7
Izee Summit	5293	2/27	27	7.1	1.1	8.1
Lake Creek R. S.	5120	2/26	33	9.7	2.8	10.7
Oregon Canyon <sup>e</sup>	6950	2/27	20	6.0	0.9	- -
Rock Spring	5100	2/27	20	4.9	0.1	5.9
Silvies	6900	2/26	33	11.2	2.0	- -
Snow Mountain	6300	2/25	36	10.5	5.5	13.0 <sup>h</sup>
Starr Ridge	5150	2/27	19	5.2	0.0	6.0
Stinking Water	4800	2/26	16	4.1	0.0	4.0 <sup>h</sup>
Trout Creek <sup>e</sup>	7800	2/27	18	5.4	3.6	- -
"V" Lake <sup>e</sup>	6600	2/27	12	4.1	0.8	- -

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# HARNEY BASIN WATERSHEDS

10 0 10 20 30  
SCALE IN MILES









NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.
OWYHEE, MALHEUR WATERSHEDS (11)							
Owyhee River							
1606	Antelope Ridge (Ide)	32 8S 1W	5900	17H6e	Quinn Ridge (Nev)	9 47N 41E	6300
1609a	Battle Creek (Ide)	10 11S 1E	5700	16G1le	Red Canyon (Ide)	32 11S 4W	6500
1610a	Bear Creek (Nev)	31 45N 58E	7800	15H6M	Rodeo Flat (Nev)	36 43N 53E	6800
1611a	Big Bend (Nev)	4 38S 42E	6700	15F3A	76 Creek (Nev)	6 44N 58E	7100
1612a	Blue Mtn Pass (Nev)	25 45N 39E	6700	16F3	Silver City (Ida)	6 5S 3W	6400
1613a	Buckskin, Lower (Nev)	11 45N 39E	7200	18G1MA	Silvies (Nev)	35 32S 32E	6900
1614a	Buckskin, Upper (Ida)	29 12S 5W	5600	16G1	South Mountain No. 2 (Ide)	35 7S 5W	6340
1615a	Bull Basin (Nev)	4 47N 34E	6500	16F6a	Succor Creek (Ida)	25 3S 5W	6100
1616a	Diaster Peak (Nev)	4 33S 33E	7900	15H9M	Taylor Canyon (Nev)	35 39N 53E	6200
1617a	Fish Creek (Nev)	8 30S 38E	4450	15H8	Tremewan Ranch (Nev)	9 39N 55E	5700
1618a	Folly Farm Summit (Nev)	33 46N 58E	6800	16G4MA	Triangle (Ida)	25 7S 3W	5150
1619a	Fox Creek (Nev)	31 43N 54E	6700	18G5e	Trout Creek (Ida)	10 41S 38E	7800
1620a	Fry Canyon (Nev)	31 45N 56E	6600	18G7a	"W" Lake	31 35S 32E	6600
1621a	Gold Creek (Nev)	22 44N 39E	7800	Malheur River			
1622a	Granite Peak (Ida)	31 8S 2W	5800	18E1M	Barney Creek	16 14S 36E	5950
1623a	Hyde Pasture (Nev)	18 42N 53E	6800	18E14m	Blue Mountain Spring	21 15S 35E	5900
1624a	Jack Creek, Lower (Nev)	9 42N 53E	7250	18F6a	Buck Pasture	21 29S 37E	5300
1625a	Jack Creek, Upper (Nev)	28 42N 53E	8420	18E21e	Bully Creek	10 17S 37E	5300
1626a	Jack Peak (Nev)	9 39S 47E	4390	18F7e	Call Meadows	29 20S 33E	5340
1627a	Jordan Valley Lookout Butte	27 40S 44E	6420	17F2e	Cottonwood-Indian	10 19S 39E	4320
1628a	Louse Canyon	18 42N 40E	6700	18E19M	Crene Prairie	24 16S 34E	5375
1629a	Martin Creek (Nev)	18 39N 46E	7200	18F8a	Crow Camp	Unsurveyed	
1630a	Midas (Ida)	34 9S 2W	5500	18E20	Eldorado Pass	20 14S 38E	4600
1631a	Mud Flat	34 40S 40E	6950	18E26e	Flag Prairie	32 16S 36E	4750
1632a	Oregon Canyon			18E18	Lake Creek	10 16S 33E	5120
				18E22a	Logan Valley	13 16S 33E	5100
				18F1	Rock Spring	23 18S 32E	5100
				18F4M	Stinking Water	33 21S 34E	4800

NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS			
Burnt River			
13E14	Barney Creek	16 14S 36E	5950
18E13M	Blue Mountain Summit	6 12S 36E	5098
17E1M	Dooley Mountain	32 11S 40E	5430
18E20	Eldorado Pass	20 12S 38E	4600
18E8	Gold Center	21 9S 36E	5340
18E9	Tipton	34 10S 35E	5100
Powder River			
18E1	Anthony Lake	18 7S 37E	7125
18E5	Bourne	33 8S 37E	5800
17E1M	Dooley Mountain	32 11S 40E	5430
18E3	Eilertson Meadows	18 8S 38E	5400
18E6	Gold Center	21 9S 36E	5340
18E21e	Goodrich Lake	4 9S 38E	6775
17D12m	Ladd Summit	5 5S 39E	3730
18E23	Little Alps	10 7S 37E	6200
18D10	Summit Springs	9 6S 37E	6000
17D7	Taylor Green	3 6S 42E	5740
Pine Creek			
17D8	Schneider Meadows	35 6S 45E	5400
Grande Ronde River			
17D1	Aneroid Lake No. 1	16 4S 45E	7480
17D2	Aneroid Lake No. 2	16 4S 45E	7300
18E1	Anthony Lake	18 7S 37E	7125

NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.
UPPER JOHN DAY WATERSHEDS (14)			
Upper John Day River			
18E1	Anthony Lake	18 7S 37E	7125
19D2	Arbuckle Mountain	33 4S 29E	5400
18D12M	Battle Mountain Summit	29 3S 31E	4340
19E2M	Beech Creek Summit	6 12S 36E	4800
18E16M	Blue Mountain Spring	21 15S 35E	5900
18E13M	Blue Mountain Summit	6 12S 36E	5098
19E3M	Derr	14 13S 23E	5670
18E27a	East Fork Canyon	15 15S 32E	5700
18E8	Gold Center	21 9S 36E	5340
18E24a	Indian Gr. Butte	5 15S 33E	6550
19E9	Izee Summit	28 16S 29E	5293
18D6	Lucky Strike	28 3S 32E	5050
20E1M	Marks Creek	25 12S 19E	4540
20E2	Ochoco Meadows	21 13S 20E	5200
18E7	Oliver Lake	14 9S 33E	6000
19E1M	Schoolmarm	28 4S 32E	4775
19E7M	Snow Mountain	1 19S 26S	6300
18E9	Starr Ridge	20 15S 31S	5150
18E25M	Tipton	34 10S 35E	5100
	Williams Ranch	20 15S 32E	4500
UPPER DESCHUTES, CROOKED WATERSHEDS (15)			
Upper Deschutes River			
21E11	Black Pine Spring	14 16S 9E	4600
21F8	Caldwell Ranch	8 31S 8E	4400
22F3	Cascade Summit	7 23S 6E	4880
21F7	Charlton Lake	23 21S 6E	5750
21F11	Chemult	21 27S 8E	4760
21F4	Fire Road	36 21S 11E	5050
21F6	Hogg Pass	24 13S 7E	4755
21F1	Hungry Flat	30 18S 11E	4400
21F6	Irish-Taylor	25 20S 6E	5500
21F17	Movich	29 25S 25E	4700
21F10	New Crescent Lake	11 24S 6E	4800
21F19	New Dutchman Flat #2	21 18S 7E	6400
21F13	Paulina Lake	34 21S 12E	6330
21F15	Pauline Prairie	28 21S 11E	4285
21F3	Tengent	28 18S 10E	5400
21E15	Three Creeks Butte	27 16S 9E	5200
21E13	Three Creek Meadows	3 17S 9E	5600
22F2	Waldo Lake	15 21S 6E	5500
22F14	Willamette Pass	3 24S 5E	5600
22F15	Windigo Pass	20 25S 6E	5800
CROOKED RIVER			
19E3M	Derr	14 13S 23E	5670
20E1M	Marks Creek	25 12S 19E	4540
20E2	Ochoco Meadows	21 13S 20E	5200
19E1M	Snow Mountain	1 19S 26E	6300
19E4	Tamarack	8 15S 25E	4800
HOOD, MILE CREEKS LOWER DESCHUTES WATERSHEDS (16)			
Hood River			
21D5	Brooks Meadows	2 2S 10E	4300
21D25M	Cooper Spur	6 2S 10E	3490
21D1	Greenpoint Reservoir	28 2N 9E	3400
21D20	Knebel Springs	31 1S 11E	3850
21D23	Parkdale	6 1S 10E	1770
21D8	Phlox Point	6 3S 9E	5600
21D4	Red Hill	20 1S 9E	4400
21D9	Still Creek	25 3S 8E	3700
21D7	Tilly Jane	15 2S 9E	6000
21D21	Ulrich Ranch Junction	28 1S 11E	3350
21D24	Upper Valley	20 1S 10E	2530
21D28	Switchback	28 1S 9E	3255
Mile Creeks - Mosier Creek			
21D6	Brooks Meadows	2 2S 10E	4300
21D20	Knebel Springs	31 1S 11E	3850
21D21	Ulrich Ranch Junction	28 1S 11E	3350
LOWER DESCHUTES RIVER			
21D12	Cleer Lake	29 4S 9E	3500
21E6	Hogg Pass	24 13S 7E	4755
LOWER COLUMBIA WATERSHEDS (17)			
Sandy River			
21D8	Phlox Point	6 3S 9E	5600
21D9	Still Creek	25 3S 8E	3700
WILLAMETTE WATERSHEDS (18)			
Clockamas River			
21D15	Big Bottom	25 6S 7E	2118
21D13	Glackamas Lake	35 5S 8E	3400
21D12	Cleer Lake	29 4S 9E	3500
21D16	Lake Harriet	4 6S 7E	2045
21D14	Peavine Ridge	14 15S 6E	3500
21D8	Phlox Point	6 3S 9E	5600
21D9	Still Creek	25 3S 8E	3700
21D17	Timothy Lake	26 5S 8E	3295
Santiam River			
22E1	Detroit (town)	1 10S 5E	1610
22E2	Detroit Dam	7 10S 5E	1580
21E6	Hogg Pass	24 13S 7E	4755
22E3	Harrison Forks	28 11S 7E	2730
22E3	Mill City	29 9S 3E	826
21E5	Santiam Junction	14 13S 7E	3990
21E3	Whitewater Bridge	28 10S 7E	2175
McKenzie River			
21E8	Dead Horse Grade	13 16S 7E	3800
22E4	Lost Creek Ranch	24 16S 6E	1956
21E7	McKenzie	35 15S 7E	4800
22E5	McKenzie Bridge	13 16S 5E	1372
22E6	Vida	28 16S 2E	8000
21E9	White Branch Slide	15 16S 7E	2800

NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.
UPPER JOHN DAY WATERSHEDS (14)			
Upper John Day River			
18E1	Anthony Lake	18 7S 37E	7125
19D2	Arbuckle Mountain	33 4S 29E	5400
18D12M	Battle Mountain Summit	29 3S 31E	4340
19E2M	Beech Creek Summit	6 12S 36E	4800
18E16M	Blue Mountain Spring	21 15S 35E	5900
18E13M	Blue Mountain Summit	6 12S 36E	5098
19E3M	Derr	14 13S 23E	5670
18E27a	East Fork Canyon	15 15S 32E	5700
18E8	Gold Center	21 9S 36E	5340
18E24a	Indian Gr. Butte	5 15S 33E	6550
19E9	Izee Summit	28 16S 29E	5293
18D6	Lucky Strike	28 3S 32E	5050
20E1M	Marks Creek	25 12S 19E	4540
20E2	Ochoco Meadows	21 13S 20E	5200
18E7	Olive Lake	14 9S 33E	6000
18D7	Schoolmarm	28 4S 32E	4775
19F1M	Snow Mountain	1 19S 26E	6300
19E7M	Starr Ridge	20 15S 31E	5150
18E9	Tipton	34 10S 35E	5100
18E25M	Williams Ranch	20 15S 32E	4500
UPPER DESCHUTES, CROOKED WATERSHEDS (15)			
Upper Deschutes River			
21E11	Black Pine Spring	14 16S 9E	4600
21F8	Caldwell Ranch	8 31S 8E	4400
22F3	Cascade Summit	7 23S 6E	4880
21F7	Charlton Lake	23 21S 6E	5750
21F11	Chemult	21 27S 8E	4760
21F4	Fire Road	36 21S 11E	5050
21F6	Hogg Pass	24 13S 7E	4755
21F17	Movich	29 25S 25E	4700
21F10	New Crescent Lake	11 24S 6E	4800
21F19	New Dutchman Flat #2	21 18S 7E	6400
21F13	Paulina Lake	34 21S 12E	6330
21F15	Pauline Prairie	28 21S 11E	4285
21F3	Tengent	28 18S 10E	5400
21E15	Three Creeks Butte	27 16S 9E	5200
21E13	Three Creek Meadows	3 17S 9E	5600
22F2	Waldo Lake	15 21S 6E	5500
22F14	Willamette Pass	3 24S 5E	5600
CROOKED RIVER			
19E3M	Derr	14 13S 23E	5670
20E1M	Marks Creek	25 12S 19E	4540
20E2	Ochoco Meadows	21 13S 20E	5200
19E1M	Snow Mountain	1 19S 26E	6300
19E4	Tamarack	8 15S 25E	4800
HOOD, MILE CREEKS LOWER DESCHUTES WATERSHEDS (16)			
Hood River			
21D5	Brooks Meadows	2 2S 10E	4300
21D25M	Cooper Spur	6 2S 10E	3490
21D1	Greenpoint Reservoir	28 2N 9E	3400
21D20	Knebel Springs	31 1S 11E	3850
21D23	Parkdale	6 1S 10E	1770
21D8	Phlox Point	6 3S 9E	5600
21D4	Red Hill	20 1S 9E	4400
21D9	Still Creek	25 3S 8E	3700
21D7	Tilly Jane	15 2S 9E	6000
21D21	Ulrich Ranch Junction	28 1S 11E	3350
21D24	Upper Valley	20 1S 10E	2530
21D28	Switchback	28 1S 9E	3255
MILE CREEKS - MOSIER CREEK			
21D6	Brooks Meadows	2 2S 10E	4300
21D20	Knebel Springs	31 1S 11E	3850
21D21	Ulrich Ranch Junction	28 1S 11E	3350
LOWER DESCHUTES RIVER			
21D12	Cleer Lake	29 4S 9E	3500
21E6	Hogg Pass	24 13S 7E	4755
LOWER COLUMBIA WATERSHEDS (17)			
Sandy River			
21D8	Phlox Point	6 3S 9E	5600
21D9	Still Creek	25 3S 8E	3700
WILLAMETTE WATERSHEDS (18)			
Clockamas River			
21D15	Big Bottom	25 6S 7E	2118
21D13	Glackamas Lake	35 5S 8E	3400
21D12	Cleer Lake	29 4S 9E	3500
21D16	Lake Harriet	4 6S 7E	2045
21D14	Peavine Ridge	14 15S 6E	3500
21D8	Phlox Point	6 3S 9E	5600
21D9	Still Creek	25 3S 8E	3700
21D17	Timothy Lake		





# The Following Organizations Cooperate in the Oregon Snow Survey Work

## STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

## COUNTY

- Douglas County Water Resources Survey

## FEDERAL

- Department of Agriculture
  - Cooperative Extension Service
  - Forest Service
  - Soil Conservation Service
- Department of Commerce
  - Weather Bureau
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Land Management
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
- Department of National Defense
  - Corps of Army Engineers

## PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific Utilities Company

## MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

## IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale-Oregon Irrigation District
- Warm Springs Irrigation District

## PRIVATE ORGANIZATIONS

- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon



UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
ROSS BLDG., 209 S.W. 5TH AVE.  
PORTLAND 4, OREGON

OFFICIAL BUSINESS

POSTAGE AND FEES PAID  
U. S. DEPARTMENT OF AGRICULTURE

**FIRST CLASS MAIL**

FEDERAL - STATE - PRIVATE  
**COOPERATIVE SNOW SURVEYS**

Furnishes the basic data  
necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry

*"The Conservation of Water begins  
with the Snow Survey"*